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American Cinematographer

APRIL 1998

THE INTERNATIONAL JOURNAL OF FILM & DIGITAL PRODUCTION TECHNIQUES • SINCE 1920

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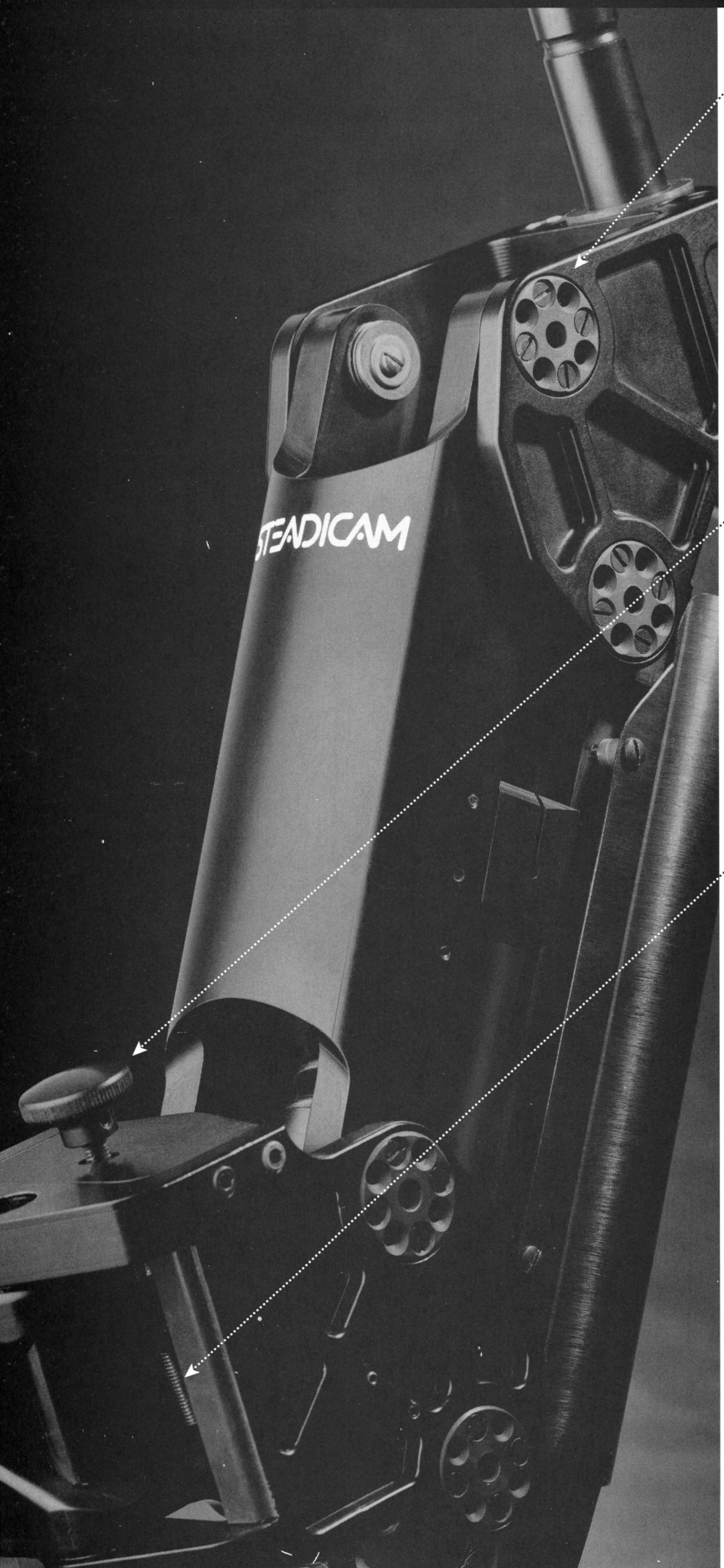

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Wonky Wheels

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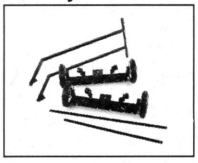
Wonky Wheels
on Sawed Board

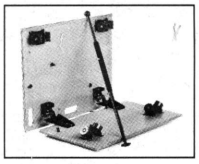
Wonky Wheels
on Wonk Board

Wonky Wheels



Wonk Board

Sawed Board



Climbing Column, Jib Stix,
McJib, Camera & Weights
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- Wonky Wheels is a steering dolly in kit form. It consists of two assembled axles with wheels, a handle and linkage bar
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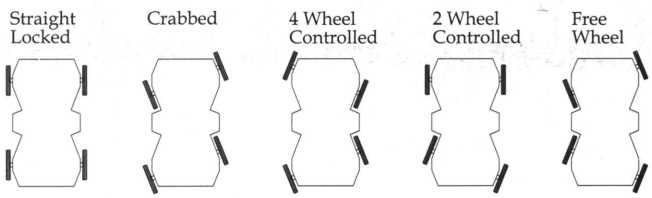
Modes of Steering



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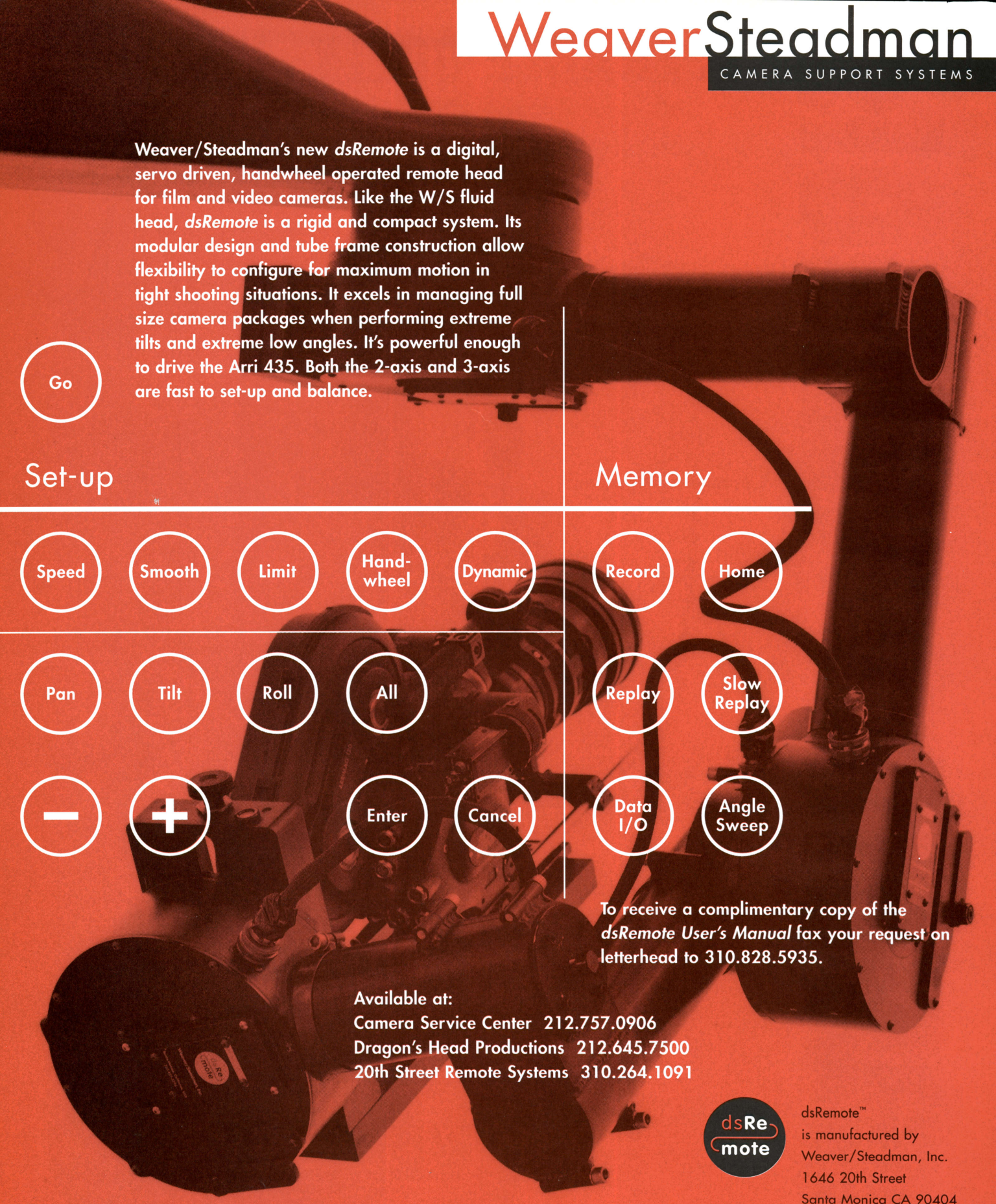
CAMERA SUPPORT SYSTEMS



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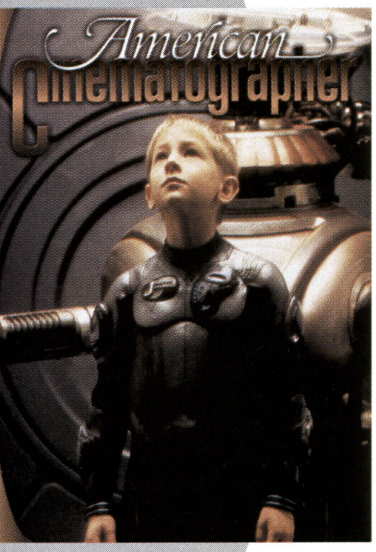

On Our Cover:
Will Robinson (Jack Johnson) and his faithful robotic sidekick brace themselves for intergalactic adventure in *Lost in Space*, directed by Stephen Hopkins and photographed by Peter Levy (photo by Jack English, courtesy of New Line Cinema).

Contributing Authors:
Bob Fisher
Gerald Hirschfeld, ASC
Jay Holben
Chris Pizzello
Holly Willis

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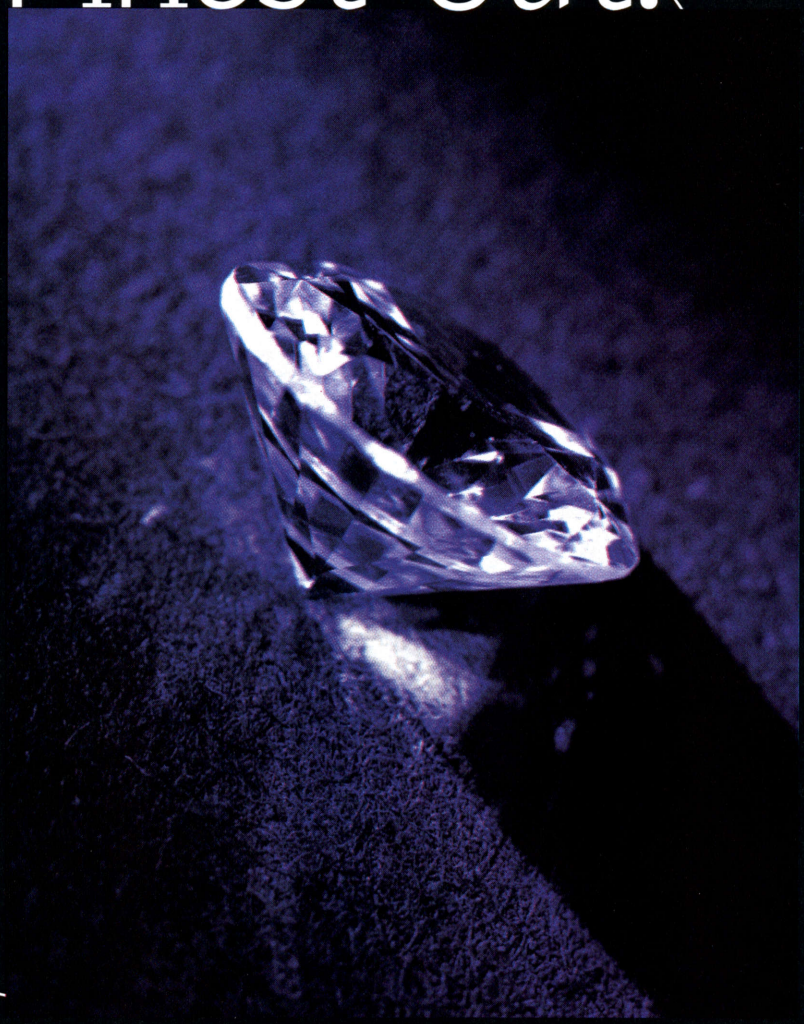

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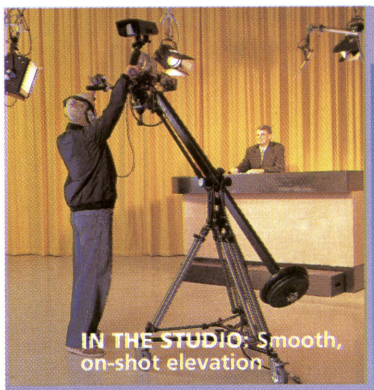

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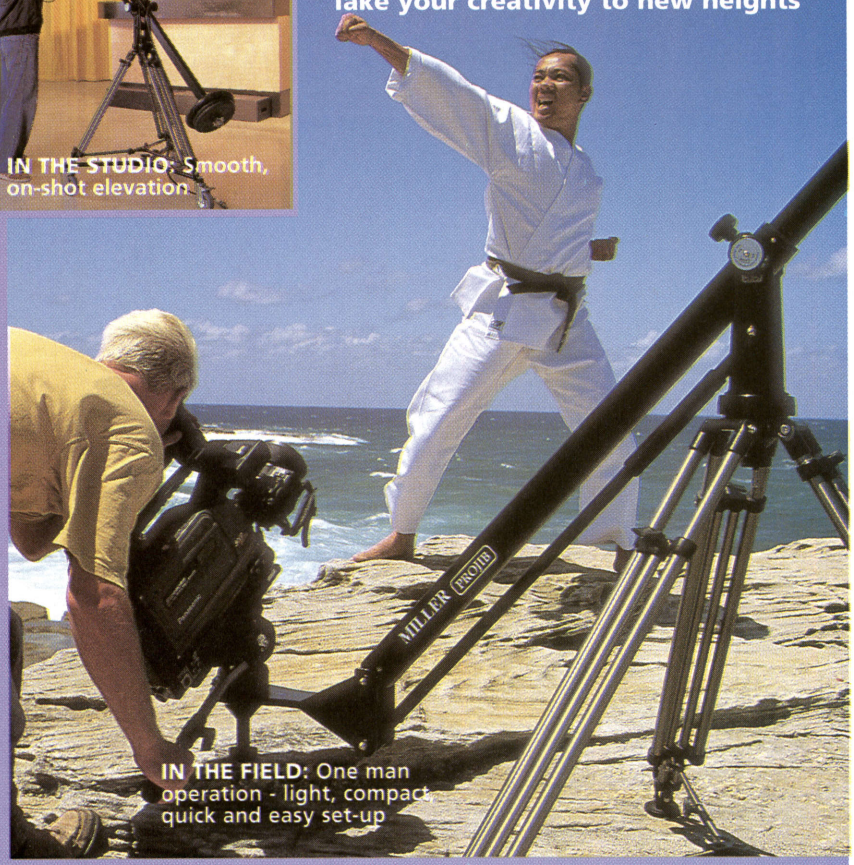

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35MM	T2.8-T32	1:1.1	6.5"
45MM	T2.8-T22	1:1.25	8"
60MM	T3.5-T22	1:1.8	12"
80MM	T1.9-T22	1:2.4	14.75"
90MM	T2.8-T22	1:2.5	16.5"
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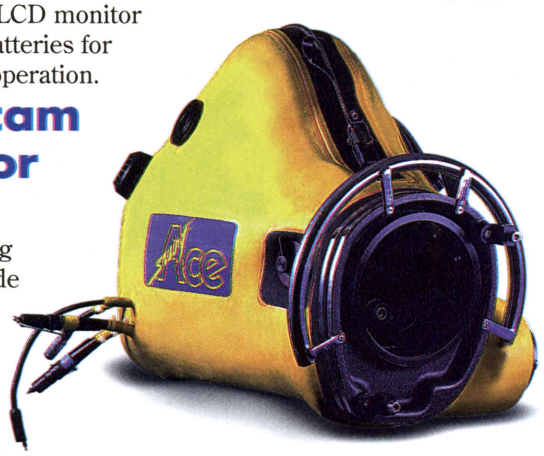
Scubacam Bags for Arri III



The form-fitting housing is made from 2.5mm natural latex and is sealed using two heavy-duty watertight zips. It is fully submersible up to 6.5 feet, has access to internal follow focus, and is equipped with viewing ports to see camera and lens functions. Clairmont can also provide you with rechargeable NiCad batteries that fit within the housing and eliminate the need for an external power source and cables. Ask about Clairmont's special on-board video recorder that enables the Scubacam to be operated totally untethered.

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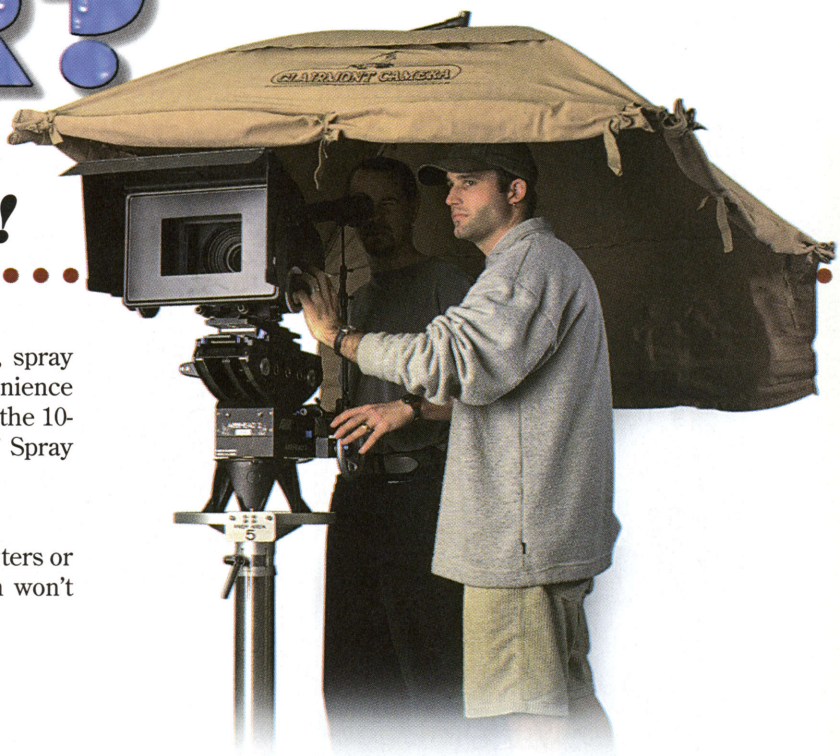

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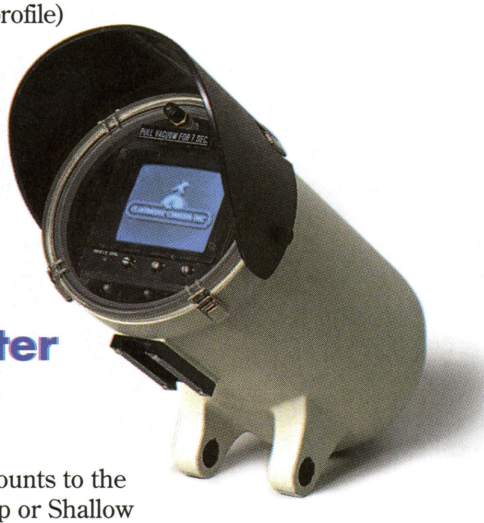

Underwater Video Monitors

This handy device mounts to the top of Hydroflex Deep or Shallow housings and provides an adjunct to remote video assist. Built to withstand pressure up to 100 feet underwater. Features 4" diagonal monochromatic CRT.

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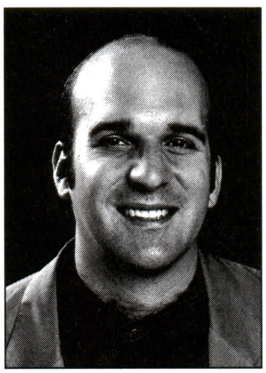


Over the past few years, digital technology has transformed the motion picture industry in dramatic ways. Computers now offer filmmakers an abundance of new creative options, theoretically opening up artistic vistas with infinite horizons.

Of course, the old maxim about computers still holds true: the technology is only as bold as the individual manning the mouse. This caveat also extends to everyone else within a production's creative circle. For a writer, thorough knowledge of digital technology's capacities can spur even greater flights of fancy as a script unfolds on the page; it then falls to the director, cinematographer, production designer, editor and effects supervisor to manipulate the available tools and realize a story's full visual potential.

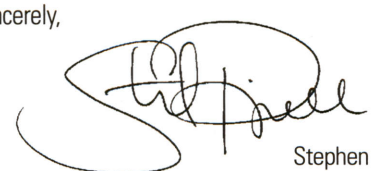
Given this interconnected chain of artists, the best possible scenario for any production is to have a pool of talent that truly comprehends the technical and aesthetic parameters of digital imaging systems. This doesn't mean that a lead actor must be fluent in computational algorithms, but it stands to reason that a project will reap enormous benefits if its key participants are able to exploit the maximum range of the new gadgets at their fingertips.

Once that level of familiarity has been attained, of course, artistic choices must be made. With digital tools becoming more and more commonplace, filmmakers face more temptations than ever in terms of image manipulation. Although many productions seem to have fallen prey to the "new toy" syndrome (applying CGI in large and sometimes excessive dollops, perhaps in the hopes of distracting viewers from gaping plot holes or implausibilities), a good number of others have recognized the value of tasteful restraint. It is the wise filmmaker who understands that audiences still seem to favor stories with a human core.

As this issue of *AC* illustrates, digital technology can be applied successfully to a wide variety of narratives. Computerized visual effects are a natural match for a sci-fi fantasy such as *Lost in Space* (see coverage beginning on page 40) or a salute to the real-life space heroes portrayed in HBO's *From the Earth to the Moon* (page 64). Monsters such as the malevolent sea creature in *Deep Rising* (see Production Slate, page 18) can also be more convincingly rendered than ever before. But note too that the latest technological advances were used to accurately re-create the Roaring Twenties in the Western-themed heist film *The Newton Boys* (see sidebar, page 86). Furthermore, all of these settings can now be previsualized (page 30), thus allowing filmmakers to maximize a concept while minimizing its cost to the budget.

Hopefully, most filmmakers will come to view digital tools as simply another series of paintbrushes, no more valuable to the final result than the right camera, lens or lighting fixture. For in the end, artistry, taste and editorial wisdom will still determine whether a motion picture is truly memorable or simply run-of-the-mill.

Sincerely,



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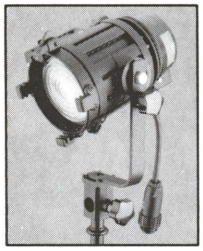

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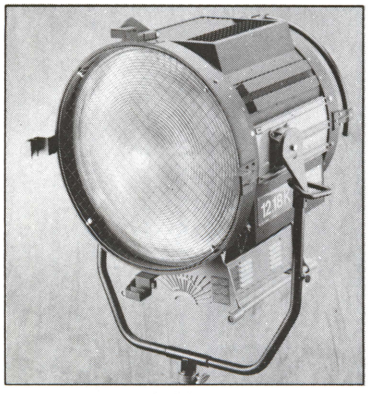

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Letters

"Color" Correction

While not wishing to diminish the role that color timers play in bringing a filmmaker's vision to the screen, I feel that Eric Rudolph's recent Points East article ["Color Timing Comes to the Fore," *AC* Nov. '97], which cites Gary Oldman's *Nil By Mouth* as an "experimental approach" to a visual goal, is inappropriate to say the least. Gary and I had extensive discussions in plotting the visual structure of the film, and a great deal of careful planning and preparation went into the execution of the shoot.

An increase in grain for a more "realistic" look and heightened camera mobility were the primary factors [which led us to shoot] in Super 16. I shot the tests with Kodak's 7293 and 7298 over a range of conditions, taking the footage through to the 35mm blow-up stage. After viewing the results with Gary, we chose to shoot on 7293. Had we wished to emphasize more grain in the blow-up, as suggested in the article, we would have used 7298, not "regular" 16mm as suggested by DuArt timer Kent McGrew.

Arriving at the final answer print for *Nil by Mouth* was by no means especially difficult or arduous. We were very pleased with our dailies throughout the shoot, and it was merely a matter of communicating the look we achieved at that time to Kent McGrew some 12 months later. In the end, DuArt produced an excellent final answer print.

— Ron Fortunato
Director of photography,
Nil By Mouth
New York, NY

Errata

In our January article about Mikael Salomon, ASC's directorial challenges on the feature *Hard Rain* ("Wet and Wild"), we refer to an overhead tracking shot that was filmed "with a Wescam" (page 59). In reality, this sequence was executed with the Spacecam system. *AC* regrets the error.

Omission

The name of L.A.-based cinematographer Jeffrey Hoffman was omitted from our article on the documentary *Ayn Rand: A Sense of Life* ("In Defense of Egoism," *AC* Jan. '98). His contribution included having shot some 40 percent of the film's interview material. *AC* regrets this oversight.

Full-Frame Correction

The photo seen below was mistakenly cropped when laid out with our article on unit still photographers ("Framing Film History" *AC* Jan. 1998). We apologize to photographer David James for the error.

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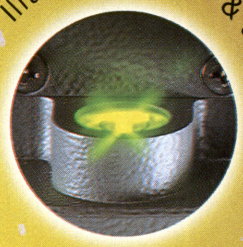
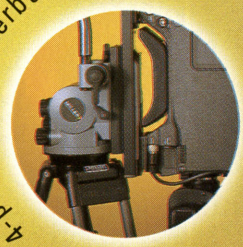
Illuminated level & drag controls



4-position counterbalance



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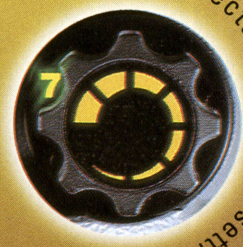

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Digital Perspectives

A DTV Caution Flag

by Frank Beacham

In the hype-charged days before the NAB selling season begins, it's unusual to get a sobering bit of reality — especially from a major broadcast equipment manufacturer. But that's what happened at Sony's pre-NAB press conference. New product announcements took the back seat to an extraordinarily candid speech on the transition to digital television by Sony's chief broadcast technologist, Peter Dare.

Declaring that there are still "holes to be filled" along the path to building a DTV broadcast service in the United States, Dare predicted it will be at least the end of 1999 before key transition issues are resolved.

These pending issues — ranging from the lack of common equipment interfaces to local manipulation of MPEG bitstreams — will not stop the timely launch of DTV, Dare said. They will, however, complicate it.

Dare said there is a good reason for candidly addressing the problems that lie ahead for the DTV transition. "If we don't educate the industry to understand where all of these pitfalls are and where the terminology fits in, we are going to be forever talking at cross purposes and never knowing what the other guy actually says," Dare said.

Many broadcasters, Dare noted, will attend NAB '98 expecting to find "all of the boxes available" to build a DTV plant. "I don't think so," he said. "We are not quite there yet."

Key reasons for the complications, said Dare, are the extraordinary flexibility of digital technology and the lack of complete guidance from the FCC on many pending issues. "The government hasn't said a heck of a lot about DTV," he maintained. "They tell us we have to decode the picture, but they didn't tell us how to display the picture. They didn't actually tell us we have to decode the audio, but they did tell us we have to decode the emergency messages."

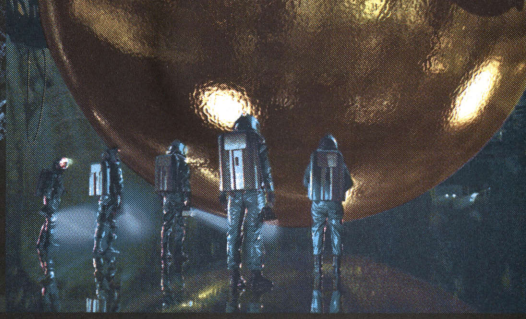
Among the unresolved issues Dare listed are the different standards between broadcast and cable television, an incomplete range of equipment interfaces, strategies for adding local program elements to the incoming compressed bitstream, incomplete audio standards, and even how urban residents might receive DTV transmissions without an outdoor antenna.

"In the area of digital data broadcasting, there's no standard yet," Dare said. "In the area of interactivity, there's no standard yet. In the area of conditional access, there is no standard yet. In the area of data carousels, there is no standard yet."

The ATSC, Dare said, is just beginning to define specifications for a multiplexer and encoder. "What are the interfaces and what shall they do? How can the manufacturers build an encoder not knowing what the interfaces are going to be — [and] not knowing what the encoders and multiplexers have got to do? We can take a stab at it and we can probably come pretty close, but we'd be wrong in some areas. In the early days, you'll probably have Band-Aids in the multiplexer and encoder area."

Issues also remain on how to modify video in the bitstream. Dare notes that boxes will be available to join two streams with a cut, insert a station ID or produce a fade. But, he added, "the issue is the tradeoffs. Do we buy the box that does this for $100,000 or do we decode [the stream] and buy another box that re-encodes for $50,000?" Even with these solutions, he added, it still wouldn't be possible to resize the picture or do a page turn in the bitstream.

In regard to the various raster formats, Dare suggested that broadcasters settle on a single house format and have everything that comes into or out of



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Visual Effects Supervisor / Jeff Okun Visual Effects Producer / Tom Boland

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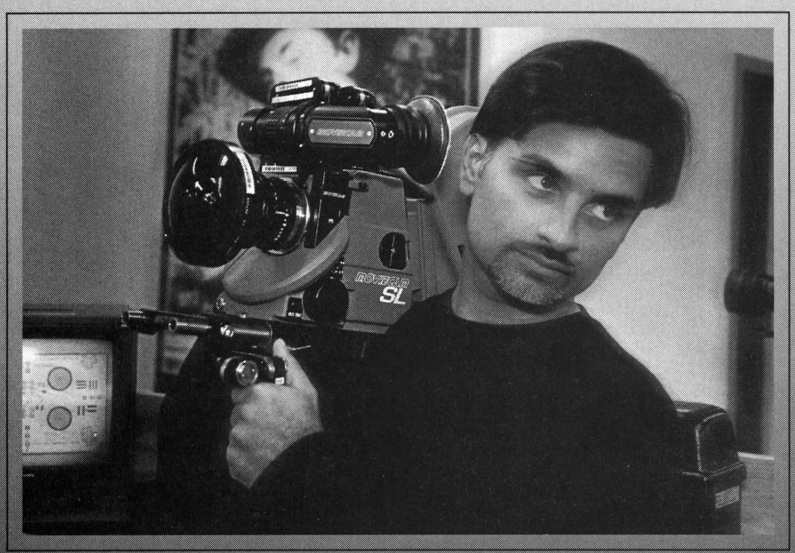

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the plant be converted to that format. He added, however, that "what comes in may not be what goes out. There are a bunch of strategic decisions yet to be made."

Televisions stations, Dare added, will have plants that use both compressed and full bit-rate video. Again, there are multiple design issues to be faced in such an environment. One, he highlighted, is how synchronous audio and video will be handled. "Without spending a lot of money, the only time you will ever see audio and video in sync is at the [home] receiver," he said. "Everywhere else in the plant they are probably going to be out of sync by about 10 frames. This could drive everybody crazy."

Turning to home viewers, Dare expressed doubt as to whether rabbit ear-style indoor antennas would work well in urban environments where outdoor antennas are prohibited on the rooftops of apartment buildings. Multipath, he noted, will continue to be a problem in such areas. While ghosts will be canceled in the new digital sets, multipath can cause the home receiver to lose the picture entirely.

"We don't have a good answer," he responded to the question of how consumer electronics dealers will demo HDTV sets in urban areas. Short of using an expensive professional spectrum analyzer to measure signal strength, he pointed out that consumers will not know in advance of purchasing a digital set whether or not it will receive reliable, over-the-air signals. Even with a positive signal measurement, it's not certain that the receiver will always receive a station. "If it rains or the trees get leaves, you may have a problem," Dare said. "If you are on the fringe and just a little above the threshold, I'd bet you'd lose pictures some days."

Dare emphasized that the remaining "holes" in the DTV landscape aren't significant obstacles and won't stop the launch of the new service later this year. "The holes have been there for a long time," he said. "We were just asleep at the switch for the last five years, idling along. The holes are not difficult to fill. You just have to have a standard way of resolving them. It's not brain surgery. It's just, 'What do we do?'" ■

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Production Slate

compiled by Andrew O. Thompson

A Road-Running Grand Prix

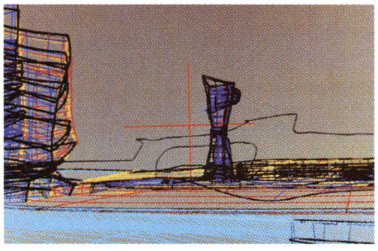
by Ron Magid

That Coyote is really a crazy clown/When will he learn that he never can mow him down?/Roadrunner, the Coyote's after you/Roadrunner, if he catches you you're through.

The premise of Warner Bros.' outrageous Roadrunner cartoons — as the theme song makes apparent — is that Wile E. Coyote is doomed to spend eternity in a Monument Valley-inspired purgatory wherein, try as he might, he can never catch that damn bird. Well, the Roadrunner may be in for a nasty surprise, thanks to an unusual 30-second spot hatched by the ad agency DMB&B. The job saw Warner Bros. Classic Animation and Industrial Light & Magic join forces under helm of Steve Beck (Acura's "Hot Wheels" spot), a master commercial stylist for ILM.

The "Coyote" spot, which first aired during the Super Bowl and is in current release, opens with another fruitless pursuit as Wile E. careens haphazardly through twisting terrain on rocket-powered rollerblades. Beck explains, "Of course, the Coyote can't stick to the road, so it becomes a control issue." This time around, however, the hapless character is granted some practical magic from Acme, the faithful mail-order company from which he has obtained many unusual items in the past. "They deliver a Pontiac Grand Prix," explains Beck. "It tackles the same treacherous roadway, and this time the Coyote sticks with the Roadrunner."

Beck notes that the outrageous spot harkens back to ILM's *Roger Rabbit* days, "only in this case, instead of putting Roger in our world, we put a real Pontiac in the cartoon world." To do that, ILM had to re-create the two-dimensional world of Warner Bros. cartoons in 3-D. "We needed the third dimension to give justification to the car being there. We didn't want it to stand out like a sore thumb, but to actually feel incorporated — unlike when Gene Kelly danced with Jerry the Mouse [in the 1944 film *Anchors Aweigh*.]"

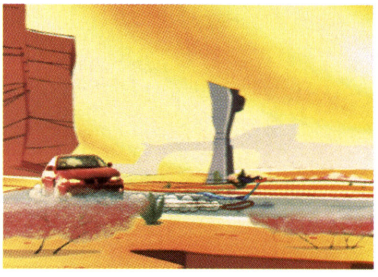


Beck began by filming a red Grand Prix in action on an empty tarmac in Santa Rosa, California; the shoot took place at midday to minimize real-world reflections in the glossy paint. He recalls, "We went a bit more flattish with our lighting, working more towards the middle of the day, just to make sure that we didn't have to deal too much with sun reflections the size of the car showing up in the wrong places.

"After that, we created a virtual car in the computer, so we could remove the real-world reflections from the Grand Prix and add reflections from the cartoon world: this tied the real car into the cartoon world. We did just enough to pick up a reflection of one of those big funny cliff faces going by, or to see the Coyote reflected every now and then."

To ensure that the commercial truly harkened back to the original cartoons, the spot's storyboards were handled by Warner Bros. Classic Animation; in addition, Beck had ILM's 3-D cartoon Monument Valley critiqued by background artists involved with the Roadrunner cartoons since the Fifties. Details Beck, "We chose the mid-Sixties style, which is slightly impressionistic — with misregistered lines and real primary colors — as opposed to the Forties' full-color look. That felt more playful and apropos for our virtual cartoon three-dimensional environment."

The final conceptual hurdles entailed blending the 2-D cartoon characters (executed by Warner Bros. Classic Animation producer Steve Donmyer and lead animator Frank Molieri) into the 3-D landscape. "Well, they actually did that great *Roger Rabbit* number of [creating the characters in] 2 ½-D, with highlights and shadows," Beck admits.



As the Coyote pilots the Grand Prix, it flies over the rugged terrain, leaping chasms, clocking hundreds of miles an hour. The poor Roadrunner doesn't stand a chance. "At the end of the spot, the Coyote's actually got him in his grasp, but the age-old iris [the circular "camera closure" that typically ends the cartoons] closes down on his hand just as it grips the Roadrunner," says an

Right: For the "Coyote" commercial, a real-life Pontiac Grand Prix was filmed on an empty tarmac during midday to minimize solar reflections. Center: ILM's wireframe, 3-D replica of the Monument Valley-like backdrop used in the Roadrunner cartoon series. Far right: A completed shot which combines the live-action vehicle with cartoon animation.

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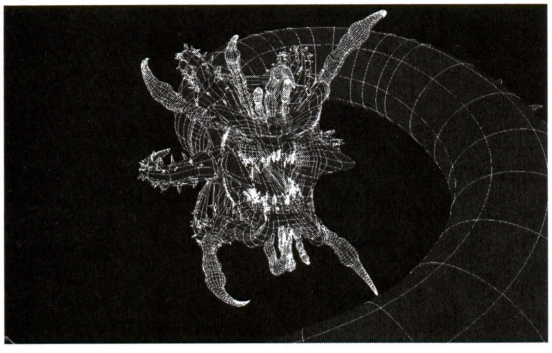
amused Beck. "Everybody was suggesting that at the end of the spot we should have just cut to the Coyote with a toothpick in his mouth, but we're already talking about doing the sequel."

Breeding a Sea Beast for *Deep Rising*

by Ron Magid

With its aquatic horror-fest *Deep Rising*, Disney Studios has unleashed an entirely computer-generated, multi-tentacled leviathan which takes up residence on a South Seas cruise ship to chow down on the luxury liner's passengers. This monstrosity was designed by veteran creature creator Rob Bottin (*The Thing, The Howling, Total Recall*) and brought to startling life by the digital artisans at Simi Valley's Dream Quest Images *(George of the Jungle,).* "*Deep Rising* is a big leap forward for Dream Quest," opines Mike Shea, the film's visual effects supervisor. "Besides what we did on *Dracula: Dead and Loving It,* this is our first 3-D CG character picture."



Below: Dream Quest Images' 3-D wireframe CGI model of ***Deep Rising*'s** leviathan, as drawn from the designs of creature creator Rob Bottin. Center: Dream Quest's shaded version of the behemoth as realized with Alias animation software. Bottom right: A final rendering of the multi-tentacled monstrosity menacing a hapless human.

Shea's crew of CG artists began by scanning various fiberglass models of the squid-like behemoth (supplied by Bottin) onto a 1mm grid, which enabled them to digitally capture all of the textures within the original sculptures. "In the computer, we created nurb models [amorphous patches that combine to form the animation, and which can flex more realistically than polygons] from the scans in lieu of a traditional polygonal model, which gave us more flexibility. Once we created the nurb surface, we threw a lot of the data away; otherwise, the creature models would have been terribly unwieldy to animate."

Dream Quest also photographed maquettes painted by Bottin and used those images to create photo-realistic texture maps of the creature's slimy skin. Not all of the design work belonged to Bottin, though. Along the way, DQ's artists made some modifications of their own. "If anything was to jump out at you, it's the paint job," Shea says of the design differences between DQ's and Bottin's behemoth. "Rob supplied us with a number of paint jobs, since writer/director Steve Sommers originally wanted the monster to be able to change color. When that particular part of the script went away, we had to come up with this homogenous version of the creature's coloration, since the director liked aspects of each of Rob's paint jobs. Although we further massaged the textures, the fact that the creature's surface was based on real photographs went a long way toward making it look real."

But beauty is only skin deep, and it's what's found underneath the creature's surface that really lends punch to DQ's creature animation. Shea wanted to give the tentacled gorgon the proper amount of squishiness. "We developed some in-house software to pull it off, which was a derivative of the shape-shifting technology that CG has had since the beginning." Usage of a few different CG models moving one on top of the other — almost like toothpaste traveling through a tube — creates the illusion of muscles writhing beneath the sea beast's slimy skin. "On top of our basic CG model, we added the muscles and the internal material, so we could make it move and create that undulating effect. On the outside of that, we sometimes had three layers of skin — though most of the time we got away with two — which slid over each other. Basically, we directed those layers to all move the same way, then scaled their motion so that one was moving a little slower than the next.

"Since the layers weren't quite synched up, that just gave the animation another layer of rebound, like what you see in slow-motion photography of a muscular person moving very quickly: the skin follows the muscles. We also added distortion over the entire body, which created the squishy feel and the muscular undulations under the skin. That, in combination with the translucent layers on top, gave us the feeling that the skin was riding over muscles."

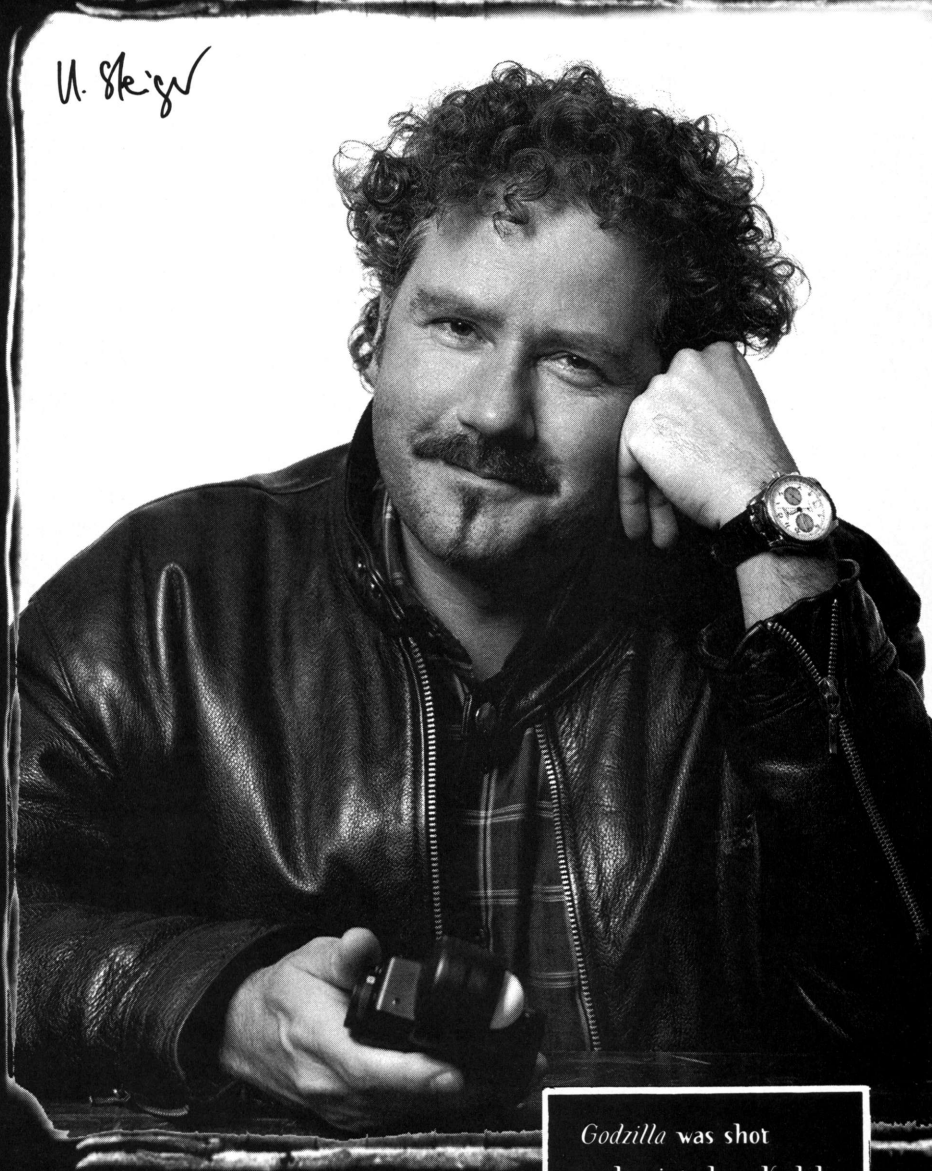
Shea's CG artists also played with the translucency and opacity of the colors in the layers to conceive a believ-

ON FILM

Ueli Steiger

"Cinematography is an art and a craft, but a lot of it is common sense. For me, it has always been about storytelling. I listen to the director and try to feel what he wants. I imagine I'm the audience watching the movie. After I see the pictures in my mind, I try to make it look like that. You have to find the right tone for each film for it to work. In *Godzilla*, the less you see the monster, the more frightening and interesting it becomes. I don't think a film like this can be too dark. We took some risks and just lit what we wanted the audience to see. It's olive drab with only flashes of light and color in things that move. *Godzilla* is a thrilling ride, but it's also joyful."

Ueli Steiger's cinematography credits include *Promised Land*, *The Hot Spot*, *Soapdish*, *Singles*, *Chasers* and *House Arrest*.



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able gelatinous quality for the outer skin. "If you take an octopus out of the water, which we did [during our research], you'll see that their skin is really translucent, as if you're looking through layers," observes Shea. "Since our monster was a water creature, we wanted to make it appear slimy but not too shiny, because that would have made it look almost like chrome. In the end, we made an outer translucent skin that was shiny in places, then slipped that over the outside of the other skin, which gave it the quality we were looking for."

The creatures' tentacles were supervised initially by DQ's digital effects supervisor, Dan DeLeeuw, but additional shots led to the extension of *Deep Rising*'s postproduction schedule; DeLeeuw was already slated to join DQ's crew for the impending *Mighty Joe Young* remake, so CG creature supervisor Rob Dressel guided the show through delivery. The visual effects crew had to convey the creature's malevolence and awesome strength while maintaining credible movement and weight as it lashed through the liner's flooded corridors. Additionally, Chris Bailey, a talented animator, came aboard midway through the production to specifically spotlight such problem areas. Shea recalls, "Those were tough calls, because the creature was supposed to move really fast, but it was difficult to make it move fast while also making it look squishy and heavy. To solve the problem, we always flattened areas of the tentacles that were contact points. As in traditional animation, a lot of the sense of weight comes from how the character settles into extremes in poses: we used an underlying muscle system to distort the skin and give our creature weight. That way, when a tentacle moved quickly and came to an abrupt stop, the muscles continued to move forward under the skin, as if carried by the inertia of its movement."

Another technique Shea's team employed to combat artificiality and weightlessness was to utilize the proper virtual shutter angle. As he explains, "Most of the software packages — including Alias, which we used to create our animation model — will support a synthesized shutter angle, which gives your images the motion blur that you'd expect from a real camera. But a lot of CG artists turn that shutter angle down from 175 or 180 degrees — the normal motion picture shutter angle — because the software renders faster when it's not calculating all of the motion blur that should be there. It's a common cheat to play with that number and see how far you can push it while not hurting picture quality, but sometimes people can go too far. I didn't let anybody play with the shutter angle, and in some cases, I actually pushed it open as far as I could — up to 270 degrees for one shot, which probably quadrupled the render time."

Shea notes that the reveal shot of the entire sea monster erupting through the floor of the cruiser's atrium was extremely difficult. This was due to the director's hesitation to display the physical connection between the tentacles and the head; the creature might have appeared to be too small to be everywhere at once inside the cruise ship, and audiences wouldn't ascertain that the multitude of snakelike tentacles belonged to a single giant creature. One shot, however, cleared up all the confusion: the camera POV booms right up into the creature's face alongside actor Treat Williams, who is gripped by a massive writhing tentacle. "That shot was the only place where I bit the bullet and used motion control," Shea says. "We placed Treat in a donut, which allowed him to rotate, and a hip harness, so that he could swing around. We then boomed him up 25 feet in the air and panned with him. We later shot clean background plates. We used these live-action motion-control background plates because I felt there would otherwise be too much rig removal and painting."

The finished shot is a marvel of coordination, with the tentacles and their various tooth-lined mouths flailing about as Williams travels up to the fearsome motherhead, where he's seen reflected in the monster's gelatinous eye. "To create the eye model, we used the same technique we pioneered for the skin," Shea reveals. "We just increased the number of skin layers so the eyeball looked very translucent and you could see lots of depth. [To create the reflection of Treat in the eye], he was shot against bluescreen and then distorted in CG with a spherical aberration. On top of that, I shot 4" x 5" still plates of the set, which were also composited in as reflections, along with some additional CG highlights."

In *Deep Rising*'s most over-the-top moment, Williams blasts the creature's head in an orgy of gore and foul jelly. Says Shea with a laugh, "That was actually 55 gallons of red and yellow methacel dropped from 20' in the air with the camera underneath, shot against black and then used as an element on top of the CG eyeball. Most of the goo and the slime and the blood-splats were shot as elements, as was much of the water. CG just doesn't do that type of effect well yet, and it's very labor-intensive. [Pyrotechnics coordinator] John Gray and I spent about a week and a half shooting goo exploding at different speeds against black and against bluescreen. Our layering technique heightened the believability of the shot and the organic nature of the creature."

Upgrades at 525 Post
by Debra Kaufman

At 525 Post in Hollywood, spotlights illuminate the results of a recent renovation, which include newly constructed Art Deco-style columns flanking a modern entrance and impressive gates. The look — which cost $300,000 and garnered a Preservation Award from the Hollywood Arts Council — couldn't be more appropriate for the 1937 building, which began its life as a film lab and is now back in the film business as a provider of digital visual effects for feature films. "I believe our facility is well-positioned to provide effects for features because of our experience in television work," observes Bob Coleman, the former president of 525, who left the company just prior to *AC*'s press time to work in sales and strategy for Virgin Digital Studios, 525's parent

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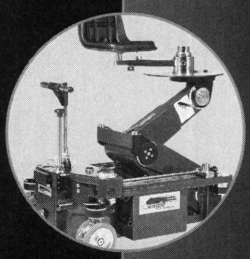

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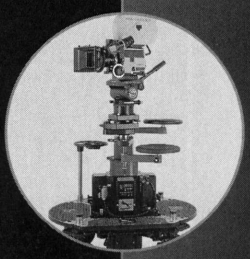

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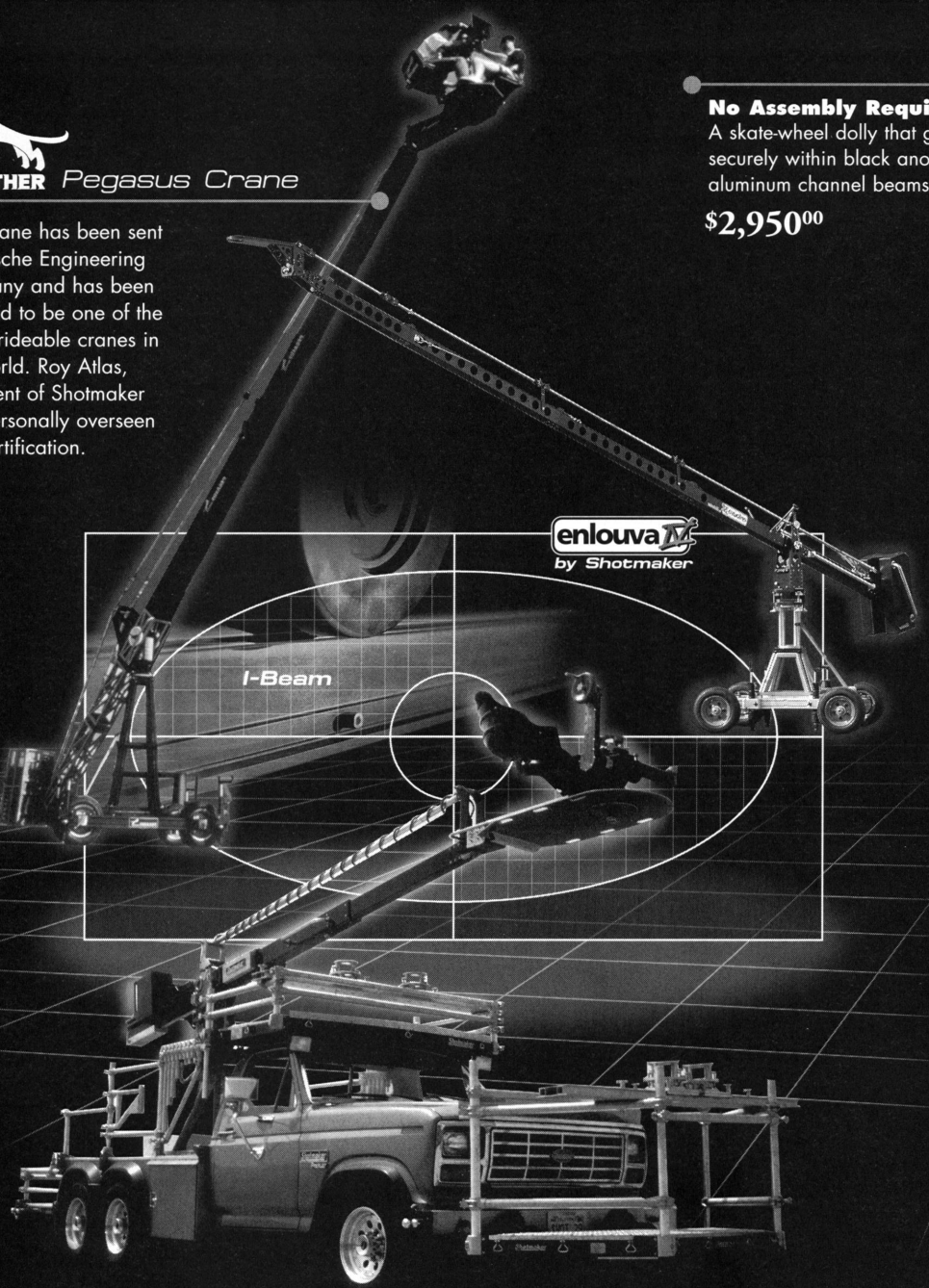

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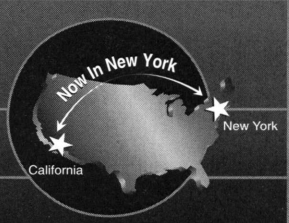

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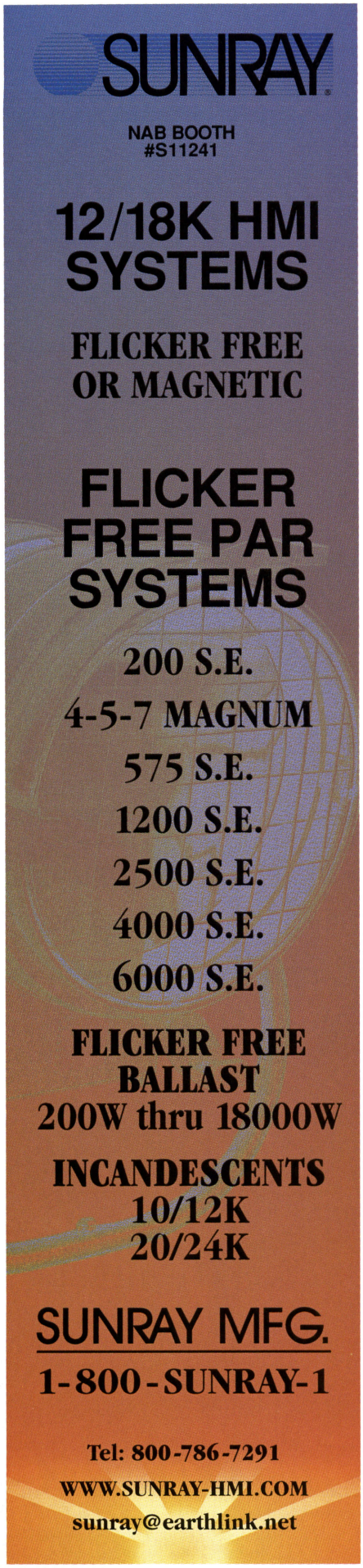

company. "The most appealing thing about [this new capability] is that it's artistically and technically challenging for both artist and engineer."

Steve Hendricks, president and CEO of VDS, recently stepped in as 525's interim president, with the intent of streamlining operations and dispensing with the company's older technology.

Since opening in 1987, 525 Post has positioned itself ahead of the curve with an emphasis on boutique-style services and pampered clients, a philosophy shared with its sister operations: Rushes in London, Lost Boys Studios in Vancouver, e-m@gine in New York, and Virgin Television Mexico in Mexico City.

Coleman cites two reasons why 525 Post stays at the head of the class: "A lot of stability in the creative area, with many of the same top artists we've had for a long time, such as Brian Buongiorno, Alex Frisch, Stan Kellam, Geoff McAuliffe, Glenn Bennett, Chris Staves, and J. Segimoto. Also, 525 has done a very good job at anticipating changes in the field, technologically and competitively, and then adjusting to meet them."

Most recently, 525 Post engaged in serious upgrades of its equipment and personnel to meet the challenges of digital postproduction for film and its roster of commercial, music video and entertainment TV clients. Two of the facility's traditional online bays were "decommissioned," leaving a single component digital online bay. In their place, 525 Post acquired a third Quantel Henry and moved their existing two Henrys to the main building, creating three Henry suites in the main building. The company also invested $1.2 million to upgrade and expand its Discreet Logic Inferno/Flame capabilities, including two new SGI Onyx^2 computers. In the annex building, the two vacated Henry suites became two of the three new spacious Inferno suites, with two additional, smaller Inferno suites for unsupervised work.

Also new to the operation is software engineer Andreas Wacker, an addition to the engineering staff who Coleman says "brings an acute understanding of film and the ability to write in Unix, which gives us a number of proprietary capabilities."

To a large extent, all of these changes are geared toward a relatively uncharted area for 525 Post: digital effects for feature films. Beginning with some Flame compositing for *Virtuosity* in 1995, 525 Post has had a hand (mainly in digital compositing and rig/wire removal) in such features as *Batman and Robin,* the opening title sequence for *Twister*, *The Island of Dr. Moreau* (see *AC* Sept. '96), *MouseHunt*, *The Game* (*AC* Sept. '97), *Flubber*, and the upcoming *Species 2*.

"There are some who never give video people credit for understanding the film process," points out Coleman, who spent 14 years in the motion picture equipment rental business, nine of them as general manager of Victor Duncan/Chicago. "But companies like 525 and others have been dealing with film origination for many years. Film has always been a part of my professional life, and that can also be said of the engineers here."

The new focus on feature film effects doesn't mean that 525 Post Production has abandoned its other markets, which include commercials, music videos, and visual effects for entertainment television. In fact, the facility's core market of short-form clients has meant that they have been able to take the leap to nonlinear online editing with their Quantel Henry, which is now outfitted with an amazing two hours' worth of data storage. "Eleven of our 15 revenue stations are workstations," says Coleman. "That's where our business is going. We are fortunate in that if we were an episodic TV post facility, we couldn't do that. A commercial film editorial company, one of our clients, said that 70 percent of their online finishing is done in Henry. But we also had a number of long-form accounts, such as *National Geographic* and their hour-long nature documentaries, so we took it a step further and expanded the storage time to accommodate long-form projects as well."

But the recent renovation and upgrades won't leave 525 Post resting

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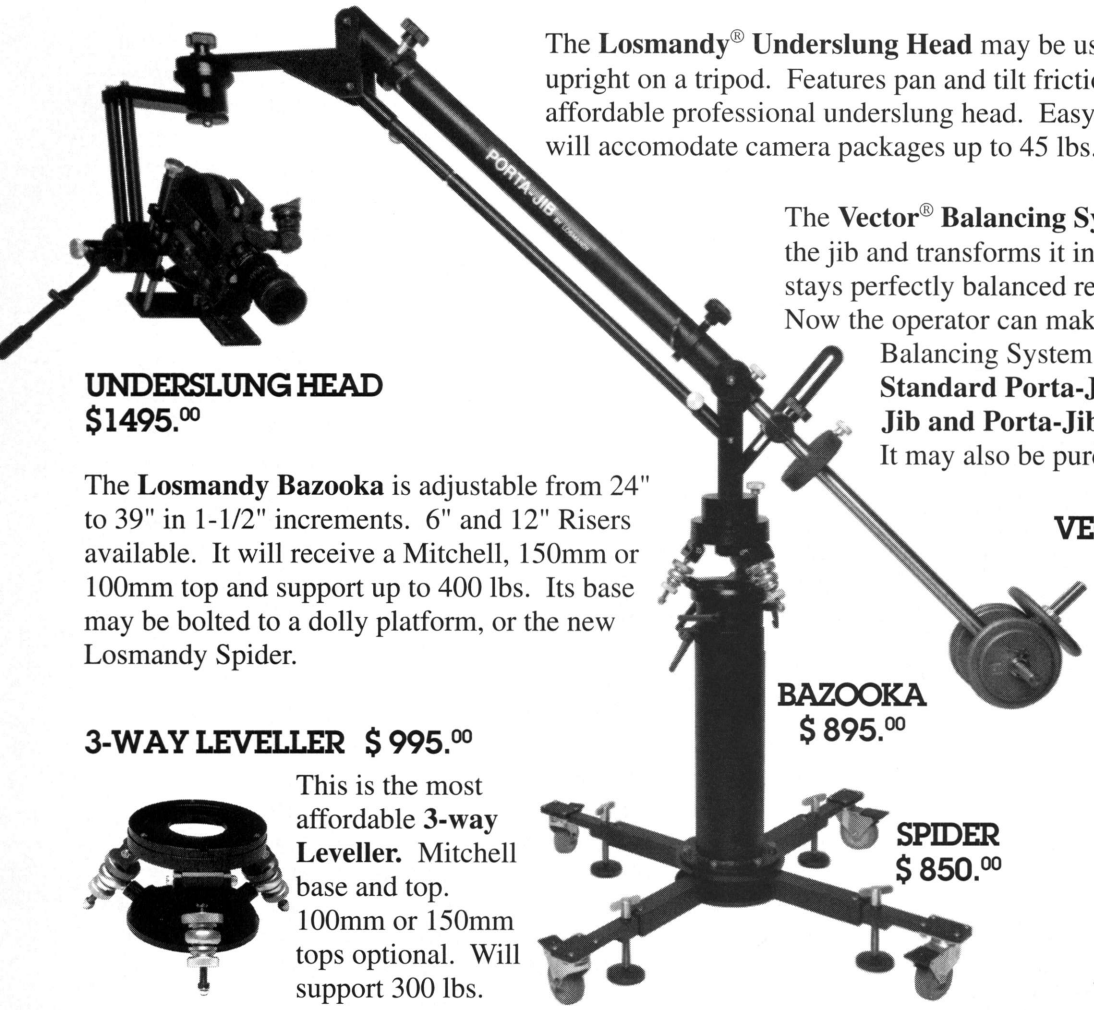

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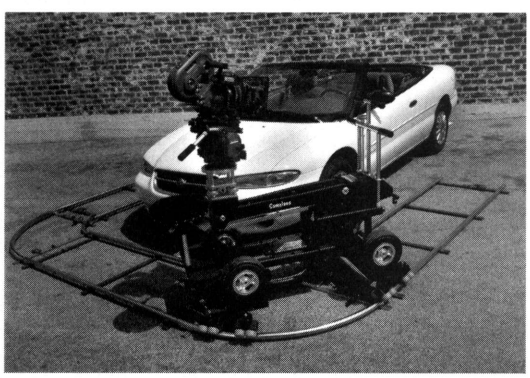

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on its laurels, especially since HDTV is around the corner. Anticipating change, the facility is already testing a Discreet Logic Fire license, and has been following the development of HD telecines for the past two years. "No clients have asked for HD yet," says Coleman, "but I think we'll see it first in short-form, commercial clients."

Sight Effects Expands Feature Presence
by Debra Kaufman

When Alan Barnett and Melissa Davies opened Sight Effects in 1989, they didn't rent a building, hire a sales rep or buy a single piece of equipment. Instead, they joined forces to provide creativity and excellence in digital compositing while renting time at other facilities, a tactic which may now seem commonplace. In the "ancient" era of the late Eighties, however, this was a brand-new process — one fraught with incomprehensible technology, untrained artists and uneducated clients. Barnett and Davies sought to remove the mystery from digital compositing while keeping the artistry in the forefront. "Our goal was to become the director's tool, the director's right hand throughout the visual effects process," explains Barnett. "A director is chosen for his or her style and approach, and visual effects should never be the hindrance. You shouldn't have to be an effects director to direct an effects spot."

After several years of operating as purely creative service sans facility or equipment, Barnett and Davies decided to offer CGI to their client base. In 1992, they opened sister company In-Sight Pix, a CGI division with partner Theresa Ellis, who has since left the firm. Trends have proven their decision to be a prescient one. "A good 75 percent of the work is now 'interdisciplinary,' such as CGI and compositing," offers Davies. "It's not just compositing anymore. You need to offer CGI to have a strong effects company."

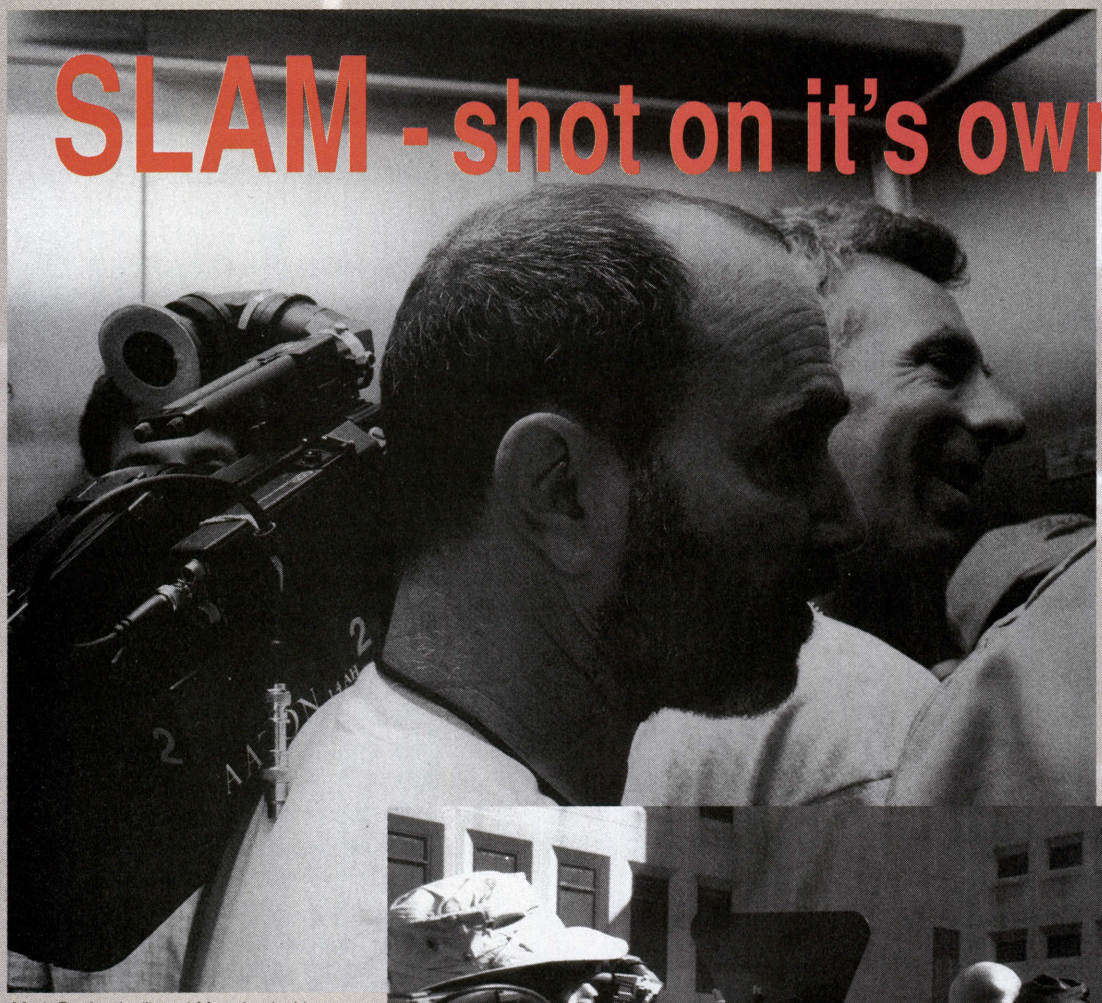
A year later, the duo also decided to embark upon a mission they had previously eschewed: the purchasing of equipment. They subsequently opened The Digital Lab with partner/chief engineer Rudy Hassen. The company now boasts a range of top visual effects gear, including Discreet Logic's Inferno, Flame, and Flint programs; a Kodak Cineon; and a Quantel Henry. On the CGI side, they have nine SGI (Extreme and Octane) workstations running Alias/Wavefront, Side Effects Prisms and Houdini, among other software packages.

The company has grown in other ways as well, expanding from its original 1,200-square-foot facility to the current 9,000-square-foot space that's now home to Barnett, Davies, Hassen and a team of five full-time animators, two full-time freelancer animators, four full-time compositors, and assorted producers and business staff.

Four walls and equipment was once anathema to Barnett, who acts as hands-on Inferno/Flame artist/visual effects supervisor, and Davies, who is executive producer/visual effects supervisor. But a look at two recent jobs is evidence that Sight Effects and its sister companies are in fine form when it comes to their brand of creative services.

For the Carl's Jr. commercial "Plants," directed by Annabel Jankle of MJZ out of Mendelsohn Zien, visual effects supervisor Davies collaborated with Jankle to design a computer-generated flower that would look like a real flower yet gobble up a juicy hamburger in man-eating-plant fashion. Having settled on an orchid as the basis for their CG creation, Davies researched how to make the purple plant function. She later worked with Jankle and director of photography Daniel Pearl during the live-action shoot of the plate containing the flowerpot — into which the CG plant would be composited. With Nicole Tidwell producing, animators Michael Capton, Andrew Orloff and Rick Sevy built a nurbs model of the orchid in Alias/Wavefront. To enhance the its organic quality, the flora's parts were animated separately, for an average of 12 layers per shot, including shadows which were animated as separate elements. This resulted in a tricky composite challenge for artist Chris Stevens. Since Pearl had shot the plates

SLAM - shot on it's own terms



Mark Benjamin (l) and Marc Levin (r)

Shot in just 12 days in and around the Washington DC Jail, SLAM went on to win the Grand Jury prize for best dramatic film at this year's Sundance Film Festival.

photos by John Kirby

"Director Marc Levin wanted to do a dramatic feature in a real jail location with real prisoners, so I knew I would have to adopt a methodology that could achieve this without restricting our creativity.

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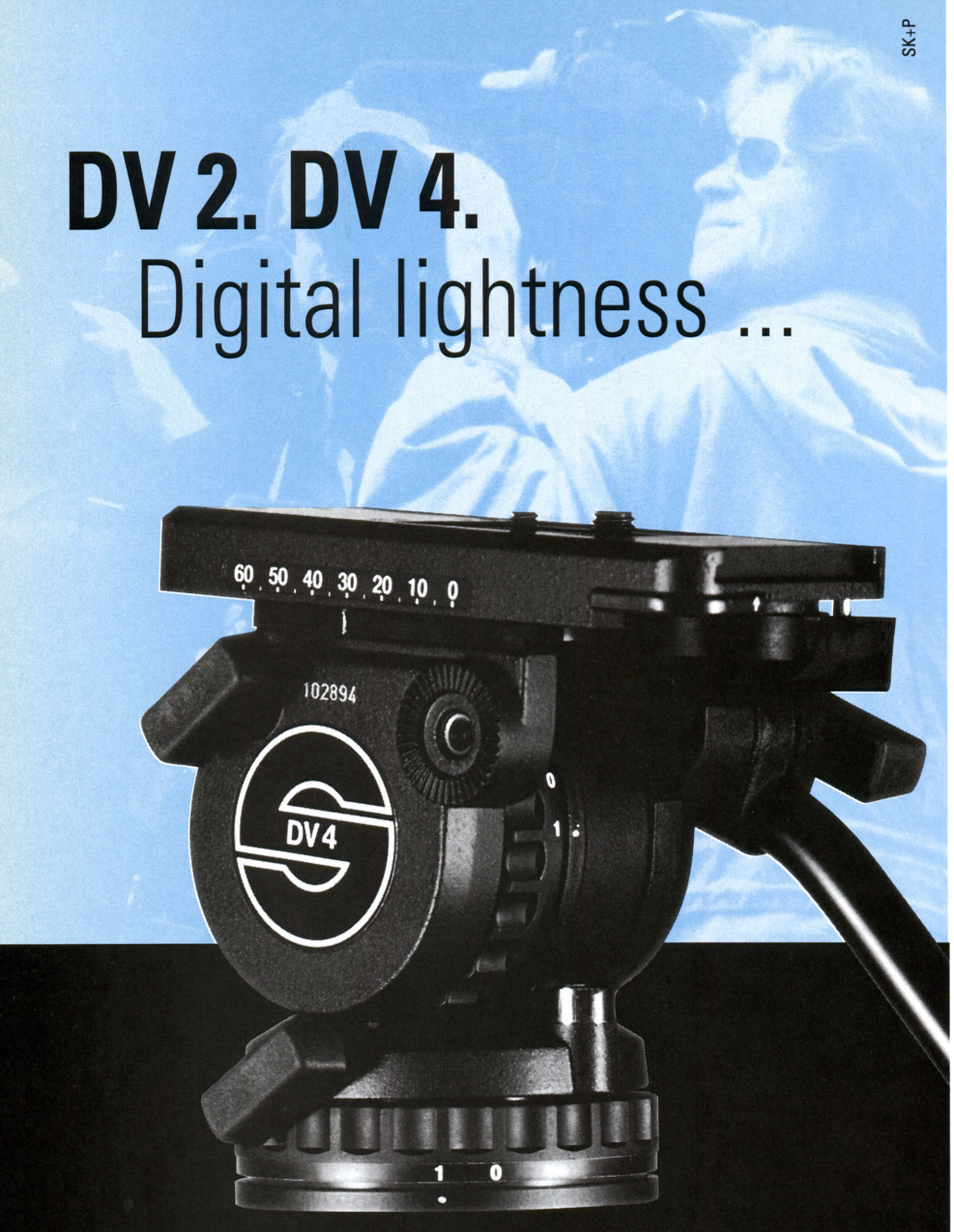

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with a handheld camera, Stevens also faced a major tracking job in order to place the orchid firmly in its pot.

In the Lexus spot "Ice Crack," directed and shot by Stiefel & Company's Craig Henderson for Team One, visual effects supervisors Alan Barnett and Rudy Hassen and visual effects producer Jeff Blodgett oversaw a complex job in which a Lexus LS400, driving across a frozen lake, is "chased" by an expanding fissure cutting through the ice. The effect was initially slated to be created with a physical model, but Barnett pointed out that such an approach would be more limiting than if they were to use a CG ice crack. The agency agreed, and with Nicole Tidwell producing for Sight Effects, animators Paolo Moscatelli, Peter Nofz and Ira Shain created an the fissure in Houdini and animated it in Flame. This included two "in-your-face" POV shots from inside the ice crack peering upwards. Ice chips and snow particle elements were also created in Flame, which was also used by Chris Stevens to do all of the compositing for the spot.

Both the Carl's Jr. orchid and the Lexus ice crack featured CG images which were photo-realistic and organic, but which also exhibited character in their performance. Work of such caliber has helped Sight Effects build its reputation for quality creative work. And while the company primarily services commercial clients, Sight Effects also has a list of feature film credits, including work on *Executive Decision, Batman Returns, Species, Apollo 13* and *Richie Rich.* The company that once provided services to effects houses such as Apogee and Boss Film Studio now bids against the likes of Digital Domain and Industrial Light & Magic. Nevertheless, Davies and Barnett have no intention of letting success spoil the unique formula that made them what they are today. "We have no desire to be a big company," says Barnett. "We're hands-on and involved in every job. If we got any bigger, we couldn't do that. The focus is on the quality of the work that goes out the door." ■

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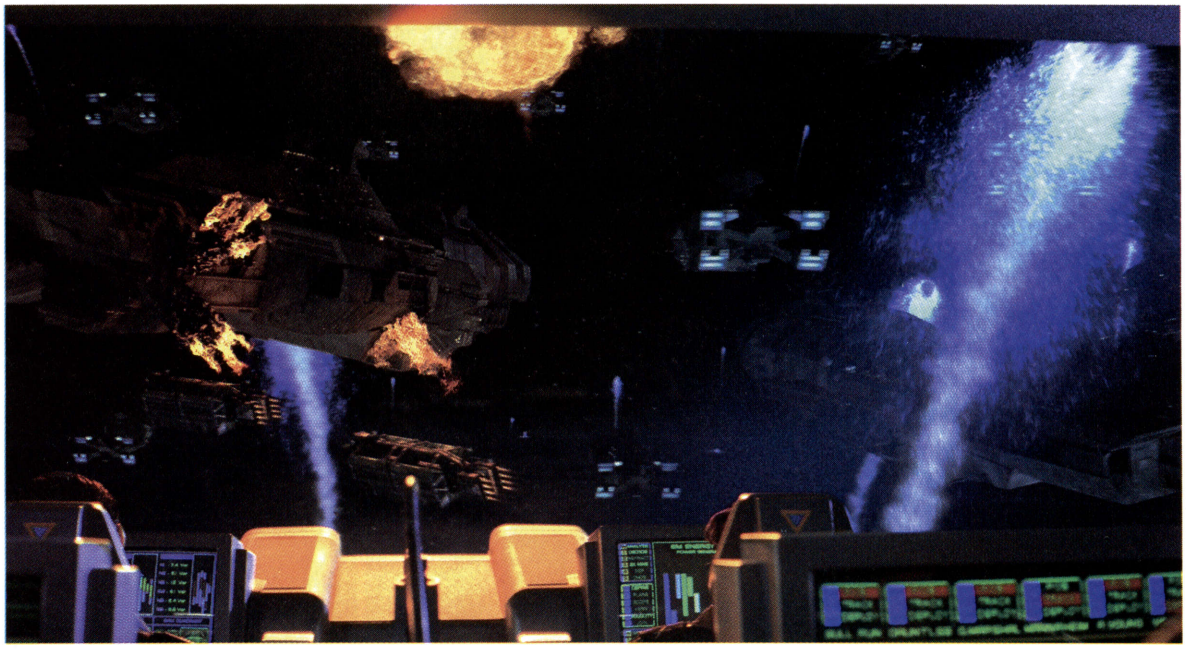
Cinematographers and visual effects artists strive to advance the face of filmmaking through the use of digital previsualization tools.

by Jay Holben

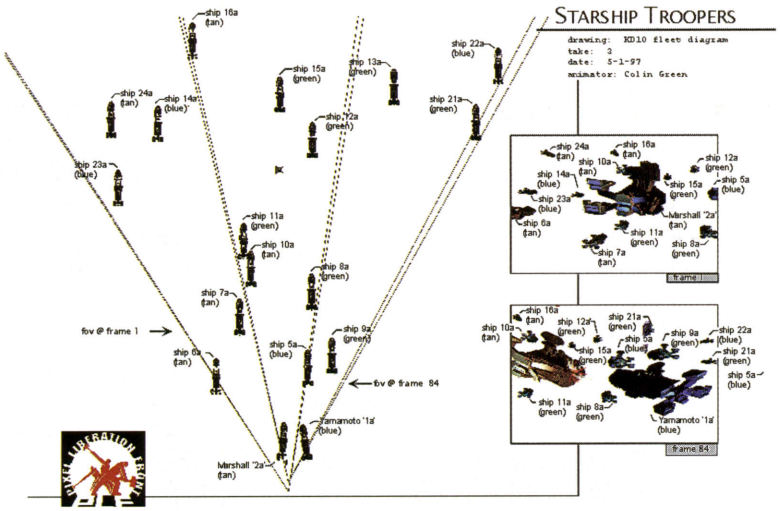
The concept of "previsualization" is far from a revolutionary one. In 1642, when Dutch master Rembrandt Harmensz van Rijn sat down to paint what is perhaps his most famous work, *The Night Watch,* he worked from numerous sketches and etchings that served to refine his compositional choices before he committed oil to canvas.

As the technology available to artists has progressed by quantum leaps — particularly in the realm of motion pictures, which have advanced in both visual complexity and cost — the necessity for previsualization has grown to epic proportions. This has become especially apparent in the visual effects field, since traditional conceptual illustrations and storyboards often cannot clearly communicate the complexity of the sequences that have been envisioned. Hampered by time constraints, directors of photography have also sought out new ways to visually conceptualize and preplan camera angles and movement, as well as lighting.

The evolution of previsualization techniques has made dramatic strides over the last two decades. While creating their groundbreaking effects for *Star Wars* in 1977, director George Lucas, visual effects supervisor John Dykstra, ASC and the team of visionaries at Industrial Light & Magic edited together old World War



Images courtesy of PLF.



Opposite: The final version of *Starship Troopers'* shot KD-10, a complex assembly of some 100 visual effects elements facilitated though the use of PLF's digital previsualization strategy. Left: An initial diagram of KD-10 used to clarify various ship positions. Below: A virtual motion-control stage created in Softimage, from which camera moves were tested and generated for the starship model mo-con rigs.

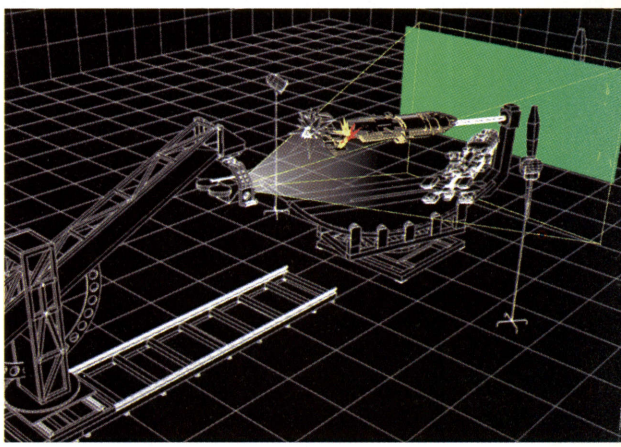
II dogfight footage to illustrate the intended pace and look of the film's climactic space battle. A few years later, Dennis Muren, ASC utilized *Star Wars* action figures while videotaping rough animatics of the speederbike chase seen in 1982's *Return of the Jedi.* As the 1980s drew on, visual effects units quickly adopted a much more widespread use of animatics as a previsualization tool. During the 1990s, visual effects companies have sought to keep pace with both the aggressive digital revolution and rising production costs. Suddenly, simple animatics aren't enough anymore, and visual effects shots often require much more in-depth examination both before shooting begins and throughout the production in order to execute the visions of today's filmmakers.

Traditionally, previsualization — in the form of conceptual designs and storyboards — was the primary domain of the art department. But as the intricacy of motion pictures has increased, much of this work is now done by the visual effects companies themselves. "For a long time, the visual effects and production design departments were separated by a wall because 'visual effects' [were deemed] postproduction — a time when the designer moved on to his next show as the work was being done," comments Peter Mitchell Rubin, a storyboard and conceptual illustrator whose work has inspired such films as *Stargate, Multiplicity, Event Horizon* and *Lost in Space* (see page 48). "There has also been kind of a prejudice and a little bit of a fear of computers on the part of artists and designers in the movie business. It's been a tough sell to get computers in the door of the art department. I think this fear goes back to when graphics were first being done on computers and the software manufacturers sold the idea that you didn't need to hire artists — [proclaiming that] *anybody* could make great art, all you needed was a computer! I think artists got it into their heads that the computer was there to replace them, but the fact is that the people who use computers best are, of course, the artists.

"When previs becomes part of the process for the art department, it allows the director and particularly the production designer to have more hands-on control over what happens with visual effects. It allows a through-line from the art department to the visual effects company. I think that it's beneficial to the production designer, because you're working with the same materials that will eventually be used during the actual production — ones and zeros."

Previsualization isn't merely beneficial for just the director, production designer and visual effects units, but for cinematographers as well. Continues Rubin, "On *Multiplicity* [see *AC* July '96], the garage apartment where Michael Keaton keeps his clones was one of the biggest sets where we were going to have to do a lot of multiple clone appearances, interaction in close quarters, camera moves with over-the-shoulder shots and physical contact. I wanted to get a real clear idea of what the layout was like, so I built a 3-D model of the garage in Electric Image. When the director of photography, Laszlo Kovacs, ASC, heard about this, he came to me and wanted to see what I had done in order to make some decisions about what lenses to use. With Electric Image's built-in lens package, I was able to show him the effects of a 50mm and a 75mm anamorphic lens within the confines of the garage before it was even built."

The need for 3-D digital previs work has resulted in the emergence



of several companies who specialize in the craft. One of these is Venice, California-based Pixel Liberation Front (PLF), founded by Seattle native Colin Green.

Green graduated from Yale University with an architectural degree in 1989. His postgraduate work at MIT ended abruptly, however, when visual effects artist Douglas Trumbull picked Green and several other students to assist him in the production of 70mm special-

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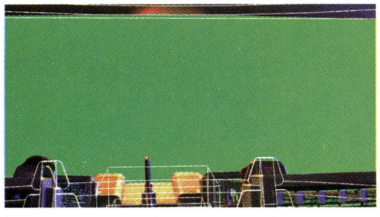
venue films for the Luxor Hotel in Las Vegas. Capitalizing on his skills in architecture, Green utilized CAD design to render several miniature



sets that would be used for these productions.

After the completion of the Luxor project, Green did not return to his studies at MIT, but rather moved on to 18 months of previsualization work on the future-flung action film *Judge Dredd*. "I was given control of the previs department," he explains, "which I reformulated and restructured more toward design than fabrication." Green's team for *Dredd* was charged with the task of designing the futuristic cityscapes that would emulate the look of the comic book upon which the film was based. Green would also work with the motion-control unit to export predetermined move files based on the approved previs designs."

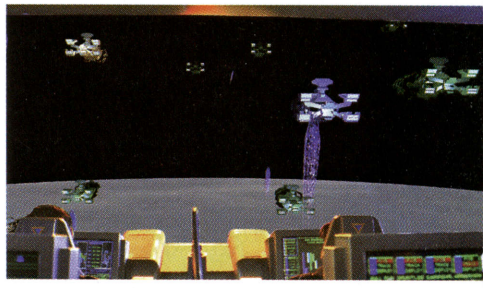
Green subsequently founded PLF. The company's first major assignment to aid in the planning of an action sequence for *Eraser*, in which Arnold Schwarzenegger escapes from a jetliner in midair by leaping out an open hatch to pursue a jettisoned parachute during his free-fall. Working with a fusion of Windows NT and SGI machines running Softimage, Green and his band of artists worked not only to aid in the design and planning of the sequence, but to incorporate themselves as an invaluable and necessary commodity for the production unit.

The epitome of this business concept can be found within PLF's work on director Paul Verhoeven's violent sci-fi opus *Starship Troopers*, photographed by Jost Vacano, ASC

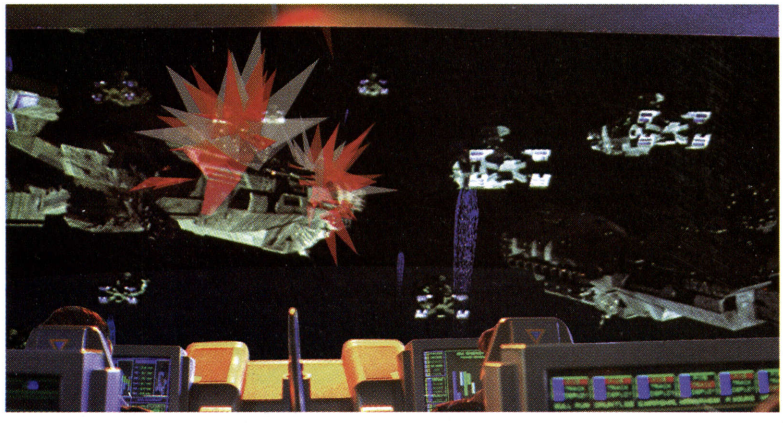
(see *AC* Nov. '97). Featuring a plethora of computer-generated creations ranging from starships to giant marauding insects, *Troopers* would also incorporate some of the most elaborate miniature sequences ever photographed.

At the onset of the film, Earth's forces invade the hostile bugs' home planet, Klendathu, but are confronted in a gigantic space battle that climaxes as two battle cruisers, the *Marshall* and *Yamamoto*, collide spectacularly. The complexity of the collision sequence, given the formal designation KD-10, is detailed by Sony Imageworks visual effects supervisor Scott Anderson: "Starting from the back to the front, there were the stars and a planet — which involved the base level of the planet, the atmosphere, the shadow of the atmosphere, a stratosphere, and the glow on the horizon. Between the camera and the planet were the plasma discharges being fired up from the planet surface, and a mix of physical and digital spaceships.

"To create the two central ships, the *Marshall* and *Yamamoto*, we used about 50 different photographic passes, which took into account all of the different interactive lighting from the fiber-optic lights on the ships themselves, the plasma, and then each of the explosion events that would cast a different direction of light across the ships. The pyrotechnic elements themselves were photographed by a different unit. Because there were two different camera angles on the collision, we had another 25 to 30 different pyrotechnic elements that were composited in. Those elements were shot so that they would be in sync both positionally and chronologically, enabling match cuts between the two shots.



"For the collision itself, we had the hero model and a digital insert piece that did the crunching and tearing. Then there was digital debris that came off as the two ships collided. In the first shot of the two — an angle from the bridge of the *Rodger Young*, whose crew witnesses the collision — we had a greenscreen composite in which the windshield needed to be digitally replaced so we could fake reflections on the glass not only of the crew, but of the exterior environment as well. We had to fake



From top: Beginning with the original greenscreen plate photography, PLF utilized rough CG models of KD-10's various elements to create a precise animatic of the shot. From there, timing, placement and angles could be worked out for the various components, which were then photographed or created and later plugged into the animatic for final approval.

any interactive lighting that would affect scuffs and scratches on the glass. I lost count, but I would say that we probably composited between 80 to 100 elements for those two shots.

"We had done some motion-control work before Colin and his [PLF] crew joined us, but given the volume of work in the shots, we simply had to work everything out ahead of time. Using Colin and digital previsualization really sped up the process. It also allowed us to foresee problems that would come up with straightforward mechanical issues. Both technically and creatively, the previs process helped a lot. For me it's about the artist, and with a group like PLF that is dedicated solely to previs, I was really able to focus on the heart of what we were getting at, which was essentially performance."

To plan and execute the complex KD-10 sequence, Green collaborated with Verhoeven and Anderson to coordinate all of the visual aspects of the 15 models and 100 digital ships in the scene. Green took his form of previsualization several steps beyond 3-D storyboards or even animatics to create a Softimage model of the shooting stage and the motion-control rig that directly connected to the camera's viewing angle. With this system, PLF was not only able to quickly modify compositional choices in a particular shot, but to see immediately how this alteration would affect the specific mechanical constraints of the motion-control stage. Based on the designs produced by Green and his team, the director and visual effects supervisor would approve the timing, blocking and compositional choices of a particular shot. PLF would then set out to coordinate the photography of specific elements for each shot.

Special attention was paid to the spatial relationship between the *Marshall* and *Yamamoto* and the more than 100 other ships in the sequence. "Before we came on, the [Sony Imageworks] shooting units were having a hard time realizing the relationship of the ships in the sequence to each other and to the grand plan of the whole battle," recalls Green. "They had drawn out crude diagrams with a color coding system to designate which ship was which. When I saw that, I said, 'We can make some diagrams for you and help coordinate this.' We then created Softimage diagrams based on the choreography of each ship and how it related to the final shots. It got to the point where these diagrams became almost like legal documents — no one was allowed to shoot without having one of our 'blueprints' with Scott Anderson's signature of approval on it.

"We did about three months

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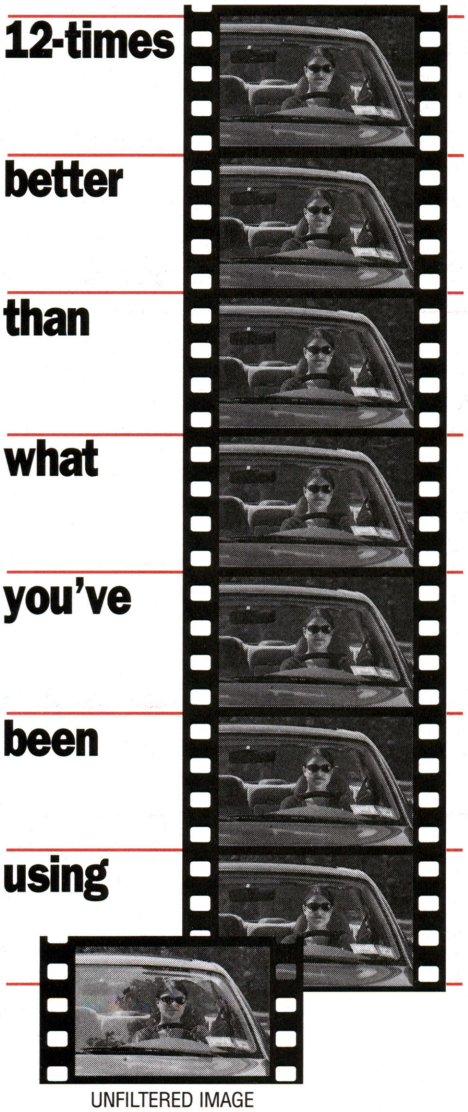

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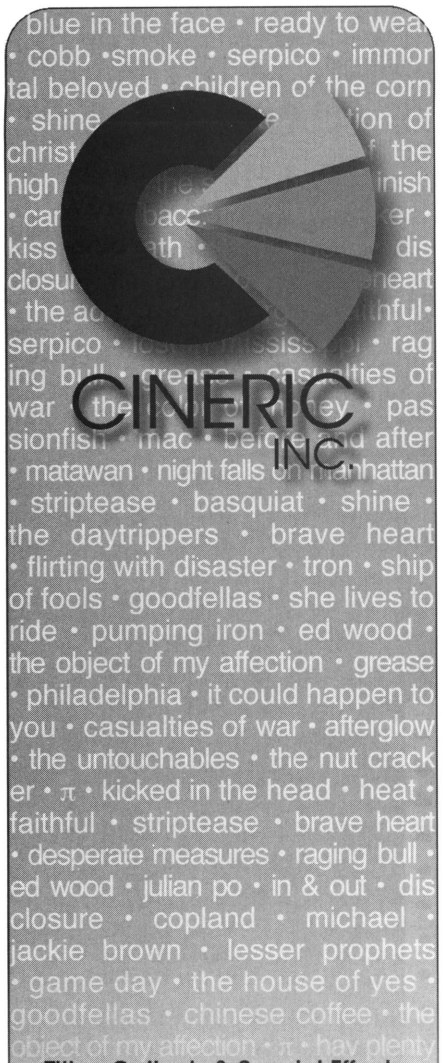

Visions of the Future

of design on all of the *Starship* shots," he notes. "After that, we moved our unit to the shooting stage, where we served as supervisors for the photography of the models to ensure that the spaceships would match what had been approved in the design phase. We did that by exporting motion data to the motion-control rig on stage. We wound up serving three different shooting stages with customized motion-control moves for each spaceship. Basically, the photography that came out of the miniature stage matched almost exactly what we had designed in the previs phase."

PLF continued their work even into the postproduction phase, when the company's previsualization data served as instant match-moves to composite additional effects onto the models. Since the shots had been locked-down digitally before being photographed, the data served as perfect templates for the final composites. "What differentiates the work that we do from other forms of previsualization is that we stick around and apply the data created during preproduction to the postproduction phase," offers Green. "We call it 'digital integration.' It's basically taking what we had done in the previs stage and delivering that 3-D data to the postproduction company as a way of helping them to place the CG elements, or to understand how layers relate to each other. It's pushing the concept of previs a lot further than most people would think."

Anderson offers, "I had done some previs for shows on my own, but I had not used it so extensively with model work before. *Starship Troopers* is, to my knowledge, one of the most extensive model shows ever done. [Utilizing previs] allowed us to tackle problems in a new way, and to come up with ideas that we might not have otherwise had without that resource, which is what is really important to me. The previs process really allowed me to think of the sequence as an entire sequence instead of just a collection of shots. Because of that, we were able to maintain the illusion of flow and dynamic shot selection throughout both of the battle sequences."

For Barry Levinson's underwater adventure film *Sphere* (see *AC* Feb. '98), Warner Bros. effects supervisor Jeffrey Okun worked closely with Carlos Arguello of Cinesite Hollywood to provide the production with detailed digital animatics. "*Sphere* started and stopped several times before any film rolled," recalls Okun, whose resume includes *Die Hard 2*, *Stargate* and what is considered to be the first film to incorporate true digital effects, *The Last Starfighter*. "In the interim, Barry ended up doing *Wag the Dog*. While Barry was out for a month putting that together, production designer Norman Reynolds, cinematographer Adam Greenberg, ASC, executive producer Peter Giuliano and I would sit down and previsualize the whole movie based on phone discussions with Barry. Then Norman storyboarded the entire movie based on those discussions. What was interesting about that process was that we would have an image on a piece of paper and Norman, coming from one school of design, would interpret it one way; Adam, being a more hands-on guy, would interpret it another way; and I, being more of an effects guy, would interpret it a third way. As the project came closer to actually having film roll and the departments began to staff up, all of those differing ideas went into flux. That's where the digital animatics finally settled all the arguments. It was an invaluable tool, especially considering that the director's attention was somewhat split between two projects."

Okun continues, "One of the key instances in which digital previsualization saved the day was in the sub descent sequence. There were windows outside the sub that were

practical with actual big tanks of water beyond each of them. The way Adam was planning the sequence was for the lights and the bubbles outside the windows to remain constant. Once he saw the animatics, he understood what we were trying to do, in that the deeper the sub went, the less light we'd have and the smaller and less frequent the bubbles would become. The animatics helped pull the sequence together."

Adds Arguello, a former creative director and animator for Pacific Data Images who served as an effects supervisor for Cinesite on *Waterworld* and *Space Jam,* "There are several scenes in *Sphere* where previs was completely essential. The jellyfish attack sequence, for example, is one where previs was invaluable. There were 20 shots or so the sequence, and we had to do several animatics to just get the feeling right."

Okun elaborates, "In the sequence, one of the crew members is walking along on the bottom of the ocean, where she suddenly finds herself surrounded by thousands of jellyfish. At first, the scene is supposed to convey the impression of standing in a field of beautiful flowers. During the course of the sequence, the jellyfish become very agitated and eventually kill her. What we had to do when we shot it was to put the actress, Queen Latifah, in a small tank, 16' deep, and have her work with a few puppet jellyfish created by XFX and puppeted by Chris Nelson. My theory was that any time she had to actually touch a jellyfish, it would be a puppet. The plan was to then shoot live jellyfish at the Monterey Bay Aquarium to fill out the background, and to create CG jellyfish at Cinesite for the key 'actors' in the sequence. We went through iteration after iteration until we got the sequence to progress on an emotional arc from beautiful placid jellyfish to this frenzy of aggressive mindless killing. Then we worked on how many jellyfish Barry wanted to see in the frame at one time, using the digital animatics process to do a very specific blueprint design of the entire sequence. These guys at Cinesite came up with fabulous solutions to the sequence. We tried to train the jellyfish, but they don't take direction very well!"

Aside from high-end digital tools for previsualization techniques, one company still has a strong lead on consumer-end previsualization. The Virtus Corporation was founded after programmer David A. Smith used the real-time virtual reality engine behind his game *The Colony* to previsualize the construction of the underwater sets for *The Abyss.* After his success on that project, Smith reconstructed the real-time

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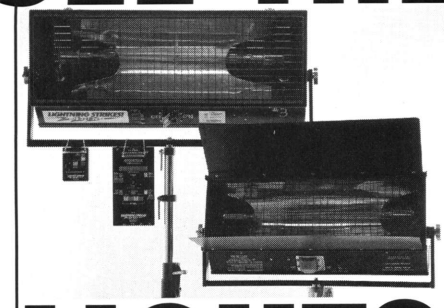

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Visions of the Future

engine into a simple interface that would become Virtus WalkThrough Pro (see *AC* April '97). Director Brian DePalma began to explore the abilities of Virtus on *Raising Cain* and has since been an avid user of Virtus, employing it to previsualize sequences for *Carlito's Way, Mission Impossible* and the upcoming *Snake Eyes.*

"To some extent, Brian has always done his own storyboards," explains longtime collaborator Stephen H. Burum, ASC, who has served as director of photography on many of DePalma's films. "At first he would just do pencil sketches. He then used pictures he would take with a 35mm camera, and eventually moved on to Virtus. He uses Virtus to define all of the pieces that he needs for a cutting pattern, primarily for special-effects sequences, such as the train sequence in *Mission Impossible.* He likes Virtus because he can cut it like a movie, using the animation files to see how long a shot should be. It's a great way to communicate with a visual effects supervisor, and to determine a budget for any particular shot."

DePalma himself offers, "In the old days, we would spend a lot of time moving cameras and placing people to come up with the right shots. Now, I can explore these camera angles and placements on my computer before the actual filming begins. This saves a lot of time and money, because we don't have to pay for anyone to be there while we experiment. Virtus has proven invaluable: I can identify problems that I may not have anticipated, before the filming starts. Plus, I get visual ideas by just mousing around. That's how I came up with the angles for the poolroom scene in *Carlito's Way.* Once you design a set on the computer, you can not only experiment with camera angles, but look at the set itself and decide which parts to build and which parts you may not need at all. Virtus has been a godsend."

The digital revolution has already changed the way many motion pictures are made, and the technology is still in its infancy. As with all revolutionary creations, however, previsualization comes with its own cautionary caveat. "We've noticed a very delicate balance in the wielding of power that previsualization holds," Colin Green notes. "Depending on what area of production hires us, previs gives them a very powerful tool to sway the production in one direction or another. If we're hired by the visual effects company, they can bias the previsualization output to their benefit, deliberately avoiding areas where they might go over bid with their budget or expose an area of weakness for them. On the other hand, if we're hired by the production company, they can sway the previs to eliminate potentially expensive sequences. We certainly haven't seen anyone abuse this power yet, but the potential is there."

Director Steve M. Katz, who authored the classic text *Shot by Shot,* comments, "The whole idea is that you can build the set based on plans in the computer, light it in the computer, include simplified digital versions of the actors, and unify all of the different departments with this one little box. Everyone can be e-mailing information, concepts and plans back and forth — thus refining the communication process. The possibility of refining and unifying the process of moviemaking is very real and just within our reach.

"This technology is right in people's faces, and it's still rarer than it should be," submits Katz. "Considering the costs that films are hitting, it's astounding that digital previsualization hasn't really taken off. However, the equipment has gotten easier to deal with, and within the next few years we'll likely see the complete integration of digital previsualization into Hollywood." ■

UNILUX Keeps High-Energy Dancer In focus

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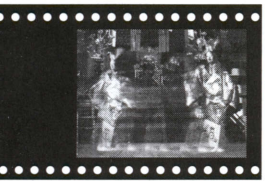

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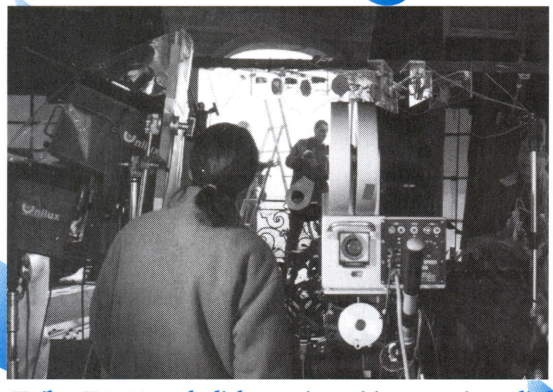
UPDATE

BFC Makes 'Rainmaker' Scene With Unilux In 'Paris' Apartment

It's sunset in Paris. A young man, sipping Hennesey cognac, steps out on his balcony to enjoy the scene when an eclipse of the sun occurs, and it starts to rain in his apartment.



Unilux H 3000 strobe lights are in position as set is readied for a Hennesey cognac commercial shot in Prague. The lights were used to backlight the illusion of rain falling in an apartment.

The commercial will play in Hong Kong, but it was shot in Prague by director Eric de la Hosseraye and director of photography Tetsuo Nagata with the aid of high speed camera operator Rudy Kris and SFX lighting technician Stijn Vanorbeek of the Belgian Film Center (BFC) in Brussels

Prague, an increasingly popular filming location, was a less-expensive site than Paris. This enabled the production team to put all their resources in the production, which included four cameras, several film stocks and five Unilux lights as well as several 18k and Arrisun units. The production team included the Hong Kong advertising agency, Leo Burnett Ltd.; the French Production company unit managed

Please see 'Rainmaker'...

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"Our home page makes it easier to exchange information with directors of photography and creative directors from anywhere at any time," said Earl Wallace, head of the Unilux Film Division and company webmaster. "In today's global film and commercial environment, you can ask questions while creative ideas are still fresh in your mind."

UNILUX STROBE LIGHTS PERSONIFY CONFUSION IN NEW FEATURE FILM 'ALIEN RESURRECTION'

If the state of confusion in the hit feature "Alien Resurrection" were personified, Unilux strobe lighting would be listed in the cast of characters. When the aliens in the 20th Century Fox release take over the spaceship on which the movie takes place, chaos reigns. Rapidly-firing Unilux H3000 lights create a god-like aura that intensifies the atmosphere of upheaval and tumult.

Supplied through the Burbank, CA office, the H3000 lights were incorporated in the filming as a "character" by Darius Khondji, director of photography. "Our mission was to make the light come alive as a living part of the movie to emphasize the feeling of fear," said Daniele Benoit, the Unilux lighting technician who worked with Khondji to set up and operate the lights during the shoot. As many as 16 lights were used to shoot sequences for the movie, starring Sigourney Weaver as Ripley, who comes back from the dead, and Winona Ryder as Annalee Call.

Please see next page...

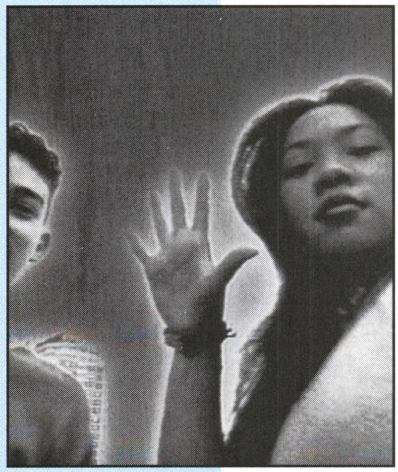
UNILUX KEEPS HIGH-ENERGY DANCER IN FOCUS

Director Jun Reyes and lighting director Boy Yñiguez of Unitel Productions in Makati City, Philippines, got the best of both worlds by combining Unilux strobe lighting and tungsten lighting for a Fundador brandy commercial. They were able to show the energetic motion of a woman dancer, keeping her in full focus while capturing motion blurs of the background and the other dancers in-camera.

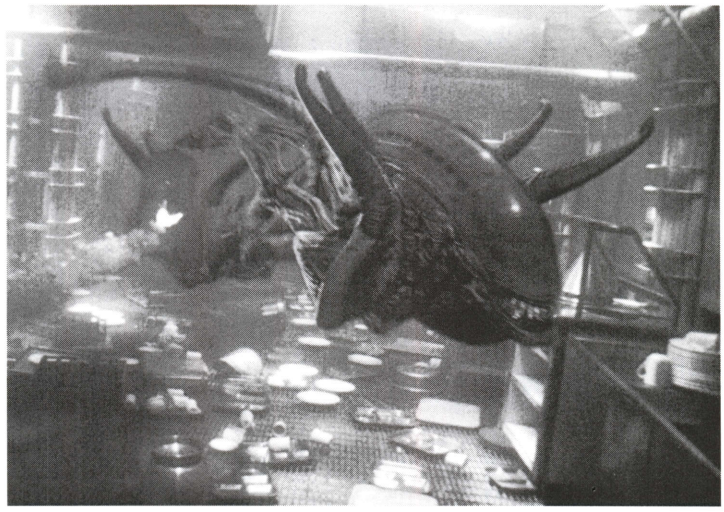
"The Unilux light froze the dancer's action while shooting 35mm film at 15 frames per second (fps), and the tungsten created the blurs," Reyes said. "We were able to accentuate the energy while appearing natural and fluid. The scene was later stretched and slowed down during post production."

For Reyes, it was a departure from his highly developed craft of using Unilux to enhance shots involving liquids and making other product presentations such as shower / bathing scenes.

"Very few directors would experiment with using this excellent strobe lighting system on live sequences," said Von M. Villareal, Unitel's general manager and chief operating officer. "We also needed to make adjustments because only the 16mm Actionmaster Photosonics is available in our market. Our challenge is to integrate our shots seamlessly with other images shot in 35mm into our commercials. We have done this with great success on many occasions."



Unilux helped to accentuate the shot's energy while giving a fluid appearance.



Pursuing a fleeing crew, the alien creature swims through the ship's galley in the feature film Alien Resurrection, which made extensive use of Unilux H3000 strobe lighting systems in creating a god-like aura that intensifies the atmosphere of upheaval and tumult.

UNILUX STROBE LIGHTS PERSONIFY CONFUSION

... Continued from front page

"One of Darius' trademarks is that he sees lighting as a living character, and he designs his lighting and camerawork around the actors," said Benoit who has worked with Khondji on other features and noted that Unilux was used in the second "Alien" film. "In this film, the lighting was used to help create a mean, mysterious feeling."

That was done by synchronizing some of the Unilux strobe lights to the cameras, which enabled the filmmakers to light each frame of film individually for greater clarity. At the same time, some scenes called for synchronizing the strobes to a special effects generator that enabled filmmakers to accentuate certain shots, and some called for having the lights firing randomly to emphasize the elements of the unexpected in the on-screen action.

Benoit said the lighting complemented the unusual mix of Panavision and Aaton cameras, which were used to shoot film at different speeds to create the sense that the situation was out of control during the takeover scene. The sequence takes place in a 40-foot elevator shaft, and Benoit had to call for all the Unilux lights he could find for the scenes, all under harsh conditions.

"We made extensive use of the Unilux controller for those scenes," he said. "We had three cameras running from one controller, and we had some lights synched to the cameras and some that weren't synched. The synchronization pattern enabled us to get a clear image and to get between the frames to see the shutter. That added to the chaos."

The Unilux lighting also was used for scenes in the cryogenic sleep chamber in the morgue, with puppets and for shots that were digitized for computerized special effects.

Benoit said that before the film's producers and director Jean-Pierre Jeunet decided to use the Unilux strobes, he and Khondji put on a mini-show to demonstrate for the film's production team. The presentation helped Unilux beat out other strobe light systems for the job.

The Unilux H3000 is no stranger to the feature film industry or Hollywood awards. In 1994, Unilux president William Blethen and project engineer Gary Nuzzi won a Technical Achievement Award from the Academy of Motion Picture Arts and Sciences for the design and development of the Unilux H3000 Strobe Lighting System.

'Rainmaker' Scene With Unilux

... Continued from front page

by Herve Lavayssiere, and the combined Belgian, French and Czech film crew.

The camera team used a high speed Panavision 300, an Arriflex 435 and two Arriflex 35-3 units. The film used most was Kodak vision 500T (5279), and it was selected for its ability to work at 300 frames per second (fps) in difficult lighting conditions. The high-speed Panavision 300 was chosen for its compatibility with the Unilux lighting system.

"Unilux was used in almost every shot, including the 'pack shots' of ice cubes falling into the cognac," Vanorbeek said. "But the light really shined in two very large setups to backlight and sidelight the rain falling in the apartment. We even used them in 10mm wide-angle shots."

In one shot, the camera was mounted on a crane over a four-story building and came down to the second floor balcony, where the actor was standing. Unilux was used inside the apartment to backlight the rain.

The decision to use Unilux was made after a test shoot in Brussels for Nagata and his production team. Negata was familiar with BFC, having brought them in to use the Unilux-Panavision 300 combination in a previous shoot in Paris. When Negata and his crew compared Unilux and HMI lighting at different frame rates, they were convinced it would be impossible to shoot without Unilux. The Unilux lighting also made it easier to create raindrops in post-production work.

Brussels-based BFC supplies Unilux Strobe lights and rents a Panavision HS 300 high-speed camera, Photo-Sonics 2500 fps camera and Arri, Moviecam, Aaton cameras as well as specialized cameras for high-speed, stop-motion and underwater photography (in16, S16, 35, S35 and 65mm formats). The company also built its own state-of-the-art endoscope for macro shots.

IT'S 'STILL' UNILUX

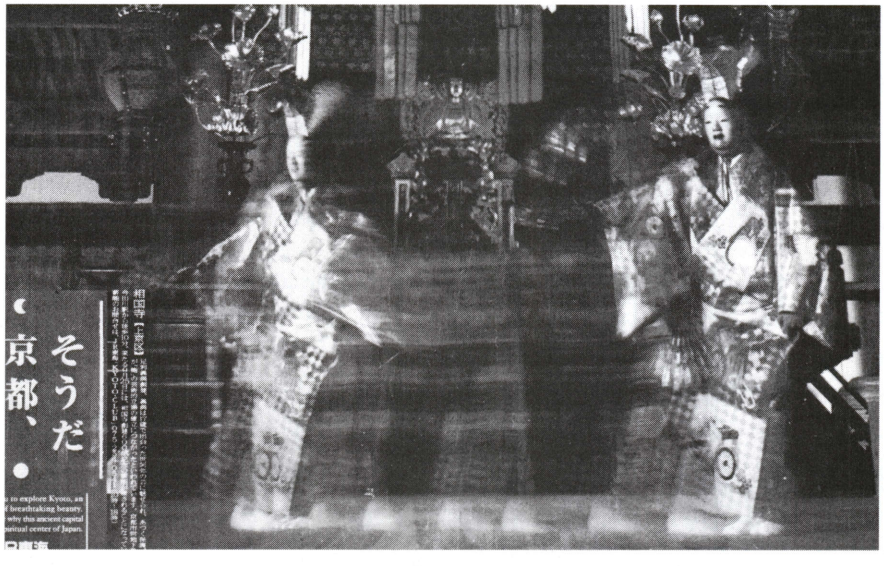
When commercial film cameraman Katsuji Takasaki needed to capture a Japanese "Noh" dancer's image for a travel poster, he turned to an old standby, Unilux strobe lighting. Using it in combination with strobe lights designed for still photography, he made the dancer appear to move through a sequence of steps in a poster for the JR Tokai Railway Company.

Takasaki shot the picture in Kyoto's Shokokuji Temple, the head temple of the Shokokuji branch of the Rinzai Sect of Zen Buddhism. Dating back to the 14th century, the temple suffered extensive damage in six fires between 1394 and 1708 but was restored each time. It carries architectural significance, representing the karayo or Chinese style of building used in Japanese Zen temples from the 12th century onward. Now a thriving industrial city, Kyoto, once Japan's ancient capital, retains its classical aura.

The Noh dancers are a connection to that earlier time. They are a form of musical dance-drama going back to the 14th century and a ritual that reflects an essentially Buddhist view of existence. The performers are trained from the age of seven, and all are male.

To make the poster shot in the Shokokuji Temple, Takasaki opened the still camera shutter to record the start of the dancer's movement with six Unilux lights programmed for 60 flashes at a setting equal to 120 frames per second (fps) for maximum light output. Strobe lights for still photography also were flashed at the start of the sequence, and the shutter was left open to record the movement of the dancer with the Unilux lights alone. The still photography strobe light was fired as the shutter was closed to record the end of the dancer's movement with both the Unilux and still lights again.

"Considering people's fascination with computerized manipulation of images, this was a remarkable shot because it was all done in one picture, using a still camera," said Masa Yasumoto of Sanwa Cine Equipment Rental, Tokyo, Unilux supplier in Japan.



Using a Unilux H3000 strobe light enabled cinematographer Katsuji Takasaki capture the movement of a Japanese Noh dancer for the JR Tokai Railway Company.

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Space Family Robinson

Director of photography Peter Levy, ACS climbs aboard *Lost in Space* for an outlandish interstellar odyssey.

by Ron Magid

Photography by Jack English and Millie Donaghy

In the mid-1960s, producer Irwin Allen's television show *Lost in Space* chronicled the futuristic exploits of the cosmos-hopping Robinson clan (so named as a nod to Johann Wyss' oft-filmed adventure yarn *Swiss Family Robinson*). Thrown far off course into a distant galaxy, the Robinsons found themselves doomed to wander from planet to planet aboard their saucer-shaped ship, the *Jupiter 2*. As they tried to find their way back to Earth, the family's weekly adventures usually focused on the show's simpering villain, Dr. Zachary Smith, his arm-flailing Robot sidekick, and young genius Will Robinson, all of whom were often harassed by aliens resembling garden vegetables. Closer in spirit to the whimsical *Flash Gordon* serials than the quasi-scientific seriousness of *Star Trek*, the *Lost in Space* series alternately enthralled and puzzled American viewers for three seasons with its winning formula of low-tech visual effects and gee-whiz wonder.

Things have changed over the last 30 years, however, and New Line Cinema's big-screen action-adventure spectacular of the same title, directed by Stephen Hopkins (*The Ghost and the Darkness*), is now poised for liftoff. Although the basic premise is the same as that of the television show, the motion picture version presents an entirely new Robinson clan led by actors William Hurt and Mimi Rogers (as parents John and Maureen), Jack Johnson (Will), Heather Graham (Judy) and Lacey Chabert (Penny). Also along for the ride are Gary Oldman (as the treacherous Dr. Zachary Smith) and Matt LeBlanc (Major Don West).

Lost in Space's long-running production entailed hundreds of extensive visual effects sequences and nightmarish logistics for Australian-bred cinematographer Peter Levy, ACS. No stranger to the rigors of effects-heavy filmmaking, he had previously collaborated with Hopkins on *A Nightmare on Elm Street 5*, *Dangerous Game*, *Predator 2* (see *AC* Jan. '91), *Judgment Night* and *Blown Away*. The cameraman's other credits include *The War at Home*, *Short Changed*, *With Prejudice*, *Ricochet*, *Cutthroat Island* and *Broken Arrow*. When asked how long he toiled on *Lost in Space*, Levy replies with a grin, "I was on it for 9 or 10 months — we shot for 120 days."

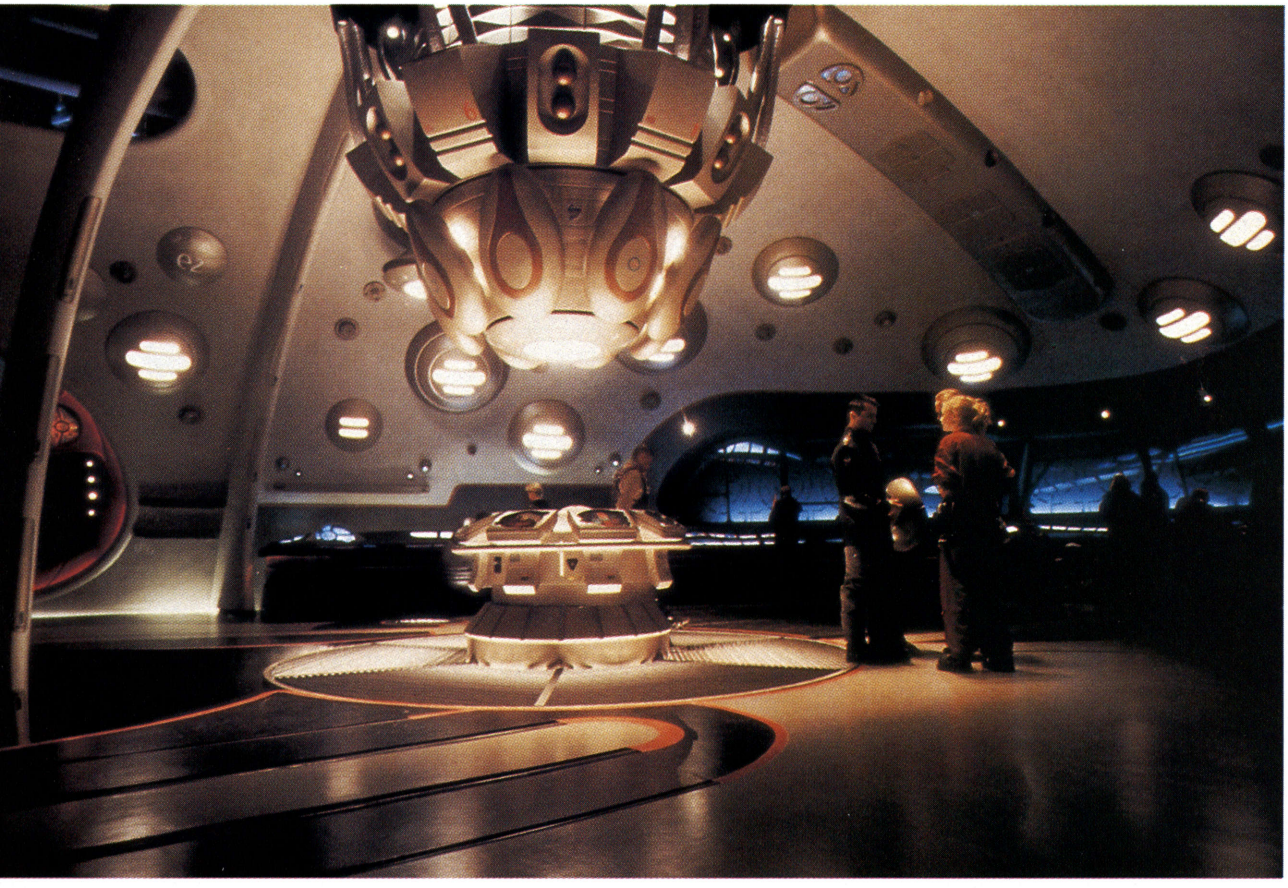
LiS was filmed entirely at England's Shepperton Studios, and while many cinematographers would kill to shoot a film on a stage, where everything can be controlled, Levy quickly found himself going stir-crazy. "While shooting on location, I've thought, 'Gosh, I wish I was in the studio,' he explains. "But after two weeks in the studio on *Lost in Space*, I couldn't wait to get out in the fresh air! Both situations require a different mindset. On location, you have to be flexible enough to find a visual style that suits what's avail-

Photos courtesy of New Line Cinema.

able, whereas in the studio, you don't have that restriction. If you don't finish one day, you can just pick up where you left off at seven o'clock the next morning. I never understood why musicians would always want to record in Jamaica — the inside of every recording studio must be pretty much the same — but you do pick up a certain vibe on location. The drive to work affects you, and on location I'll key into that feeling faster, while in the studio I have to manufacture it internally. It's hard to drive to the studio every day!"

Shooting in 2.35:1 anamorphic with Panavision gear ("my equipment of choice for the last 10 or 12 years") helped Levy give *LiS* an expansive look that would encourage audiences to take the picture seriously. "Shooting anamorphic is like sending a message to the audience that I'm painting on a large canvas," Levy offers. The cinematographer notes that other subtle photographic cues can also have an affect on viewers. He explains, "Something Gordon Willis [ASC] said a long time ago stuck with me: 'By shooting [at] a fixed depth of field, you get a consistency of depth of field, which contributes to visual harmony.' So I like to work at a consistent stop, especially in the studio. Although this approach limited the range of lenses we could use, I chose a reasonably deep stop for depth of field — T4 — which gave the focus puller some range and utilized the best part of the lens. I would light all of my sets to T4, except the surfaces of the various planets [that the Robinsons visit]. The audience may not be aware of it, but this is one of the components that adds up to a visual style and helps bind the film together."

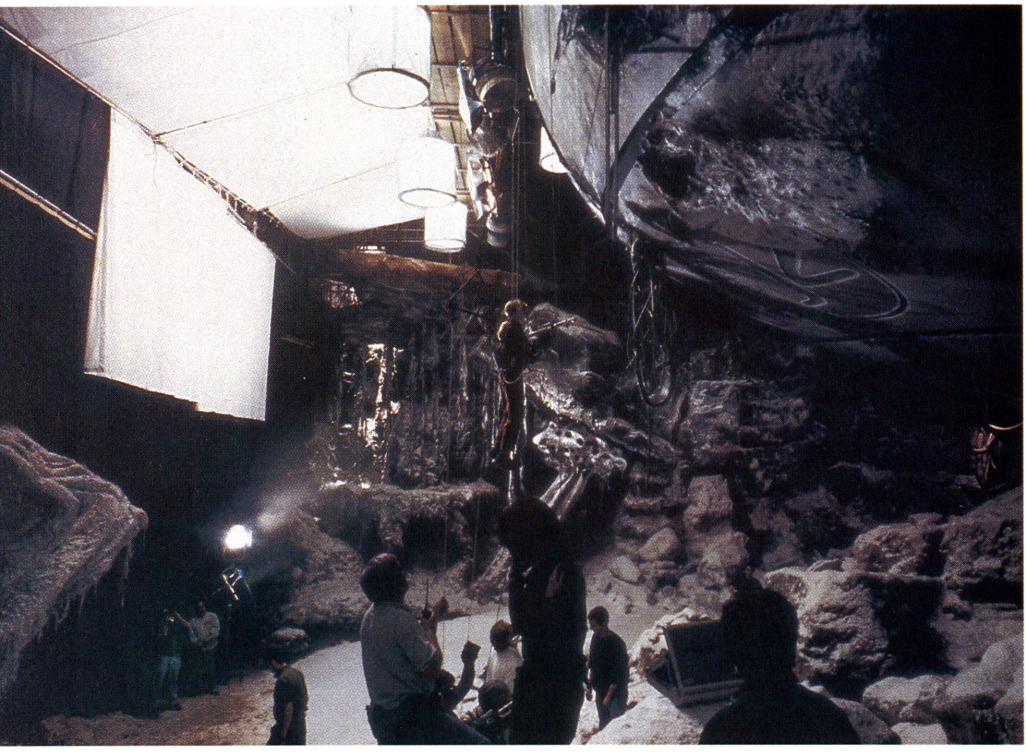
To give *LiS* the proper sense of a space opera, Hopkins and Levy knew they had to imbue the few scenes set on Earth with a sense of warmth and nostalgia so audiences



Opposite: The Robinson family huddles against adversity. Production designer Norman Garwood's Modern-design motif was applied extensively to the *Jupiter 2*'s interior (left), which features eye-pleasing spaces that are utterly impractical in terms of the realities of space travel. "It looks like the inside of an egg," cinematographer Peter Levy says with a smile. "Rather than being a grungy, dirty spaceship like those seen in the *Alien* films, this ship is composed of curved surfaces with a lot of oval and elliptical cutouts."

Space Family Robinson

would understand why the Robinsons are so desperate to get back home. Key among these was a short sequence set in the Robinson's retro-Modern abode the night before their fateful space flight aboard the *Jupiter 2*. "Our emotional brief was to make Earth look cozy and desirable, so I lit the house set to make it feel as nice and homey as possible," Levy recalls.



Repair work is done on the "crashed" *Jupiter 2* on stage at Shepperton. Levy relied heavily on space lights and large soft sources teased down to surround the structure.

"I used warm practical sources, soft light coming around corners, and fairly flattering light on the actors. Outside the windows, we had some old-fashioned painted cyc backdrops of the distant futuristic Houston skyline, with little peanut bulbs flashing on the tops of the buildings to add some depth. I then hung a lavender net in front of the cyc to diffuse things and suggest that there were layers of atmosphere between the house and the city."

Like many of the picture's sets, which were envisioned by production designer Norman Garwood (*Time Bandits, Brazil, Glory, Hook, Cutthroat Island*), the Robinsons' home was based on ovals and circles, and constructed to feature numerous curved surfaces. "The broad approach was to do what people in the 1960s *thought* the future would be like, rather than what we know to be modern today," Levy says.

These tactics were also applied to the mission control structure, from which the Robinsons depart on their never-ending voyage. Perched miles above the Earth inside a pod atop a space needle, the mission headquarters is a curved, cavernous copper-colored affair, with 12'-thick walls perforated by four huge circular windows designed to withstand the intense pressure of space and to protect inhabitants from the blasts of launching spaceships. Levy details, "It was a roomy, open set, 120' by 60' wide and probably 35' high, with big plaster columns in the middle and two massive featured columns on either side of a gigantic view screen. We think of a 'mission control' center as having a logical basis, with people sitting in certain spots so they can communicate with others, but in our version, the technicians all watch the same master screen instead of having their own monitors. Others are clustered around practical monitors built into the bases of the columns.

"We had a neon lighting crew on the lot, and I had them construct neon tubes to fit the curved surfaces on the columns, so there would be a glow coming from the top. I then used some built-in practical lights shining up from below. Most of my lights were 20Ks —10Ks became my small lights — which we placed up high to shoot straight down walls, creating light washes. When I didn't use 10Ks, I used little 500-watt lights to just put a little spot or highlight behind the action. I also picked up the warm copper tone of the walls and columns and accentuated it with light of a different color, probably apricot. Again, I just used little bits here and there to define and complement the walls behind people, and to suggest depth and layering."

The four Plexiglas windows looking out onto the launch pad were cone-shaped (like the viewing ports found on old-time diving bells), measuring 8' in diameter on the exterior of the set but 12' across inside. For the launch of the smooth, saucer-shaped first-stage *Jupiter 1* spacecraft, Levy had to create interactive lighting to depict the blast of the ship's engines washing over mission control. The cinematographer recalls, "Before the ship took off, a 'blast shield,' which had a louver-like design, came down over the windows, which I used to keep the light level very low inside mission control. On the other side of the shield, I had banks of Dinos and Wendy lights with flame-colored gels, which I brought up on a dimmer. This huge lightbank ate its way through the louvers to penetrate into the dim room. Norman Garwood and I consulted on most of the finishes for the sets; for mission control, I requested gloss and semi-gloss surfaces, metallic sheens and glazes that would give the bright light

something to react with, creating unusual reflections and unexpected shadows. Interesting things happen when you use an excessive amounts of light and overexpose the film stock severely."

However, Levy's primary stock on *LiS* was Eastman Kodak's Vision 500T 5279, which has tremendous latitude at both the top and bottom ends, making it more difficult to over- and underexpose scenes. "It's a beautiful stock," Levy remarks, "but because it has a very high latitude at the top end, it wouldn't go white — the detail just kept hanging in there. Meanwhile, its bottom end is so extensive that it's often hard to make it go black; at four or five stops under, you're still getting detail you didn't count on getting. If you're trying to hide part of the set, or deliberately not show something, you actually have to make an effort not to see it."

After the launch of the *Jupiter 1*, which looks almost exactly like the TV Robinsons' original spacecraft, the ship undergoes a transformation, shedding its rocket-booster shell to reveal the highly detailed, egg-shaped *Jupiter 2*. Inside the Robinson's spacecraft and elsewhere, Levy used Kodak's fine-grain EXR 5293 stock for the considerable number of shots featuring visual effects. "We had a lot of interactive lighting. For instance, if somebody walked up to a pedestal and activated a holographic navigational instrument, we had to design an interactive light emanating from the hologram, as well as lights that would correspond with other effects we hadn't seen yet."

Garwood's Modern-design motif was also applied to the *Jupiter 2*'s interior, which features eye-pleasing spaces that are utterly impractical in terms of the realities of space travel. "It looks like the inside of an egg," Levy says with a smile. "Rather than being a grungy, dirty spaceship like those seen in the *Alien* films, this ship is composed of curved surfaces with a lot of oval and elliptical cutouts. Knowing Steve [Hopkins] very well and understanding how he likes to shoot, I realized that the sets had to light themselves. The design dictated that there would be no right angles to any of the sets, and since the spaces represented a spaceship, they had to have indirect lighting — there was no other choice.

"On the bridge set, I was trying to sell the scale and the idea that it's high-tech, so I did some washes of color over the walls and put strip fluorescents below the floor-level mesh. I also designed in a gap between the floor and walls so I could get a little up-glow, but because we had all of these curved surfaces, I couldn't use straight fluorescents or the light would vary with the distance to the wall. Instead, I had massive runs of curved neon made in a range of colors, shaped to fit the set under the kick board, which was open so the light could escape. You'd never see the bare neon, just the glow. The set didn't need much additional ambient light because of the 30'-high white domed ceiling. Light was just

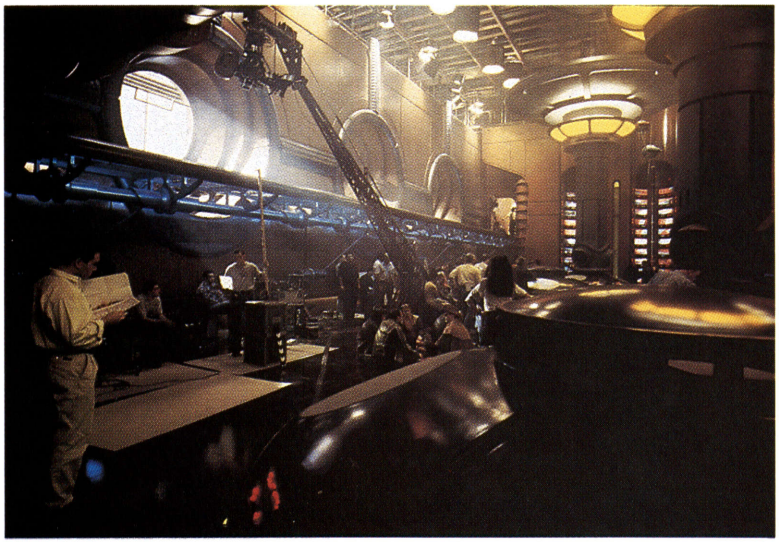
Left: Shooting on the *Jupiter 2*'s bridge. Explains Levy, "Each crew station comprised its own section of the matted dashboard that wrapped around the set in about 120 degrees. When you have enough lights and monitors, you create an ambience, and that enabled me to light the actors from their dashboards using very small units hidden within the set." Below: Craning in on an alien planet. Levy used deeper stops (T8 or 11) to create a greater depth of field for planet exteriors: "You shouldn't have a shallow depth of field on an exterior."

Space Family Robinson

Shooting on the mission headquarters set. Garwood's structure was a tall, curved, cavernous copper-colored affair, with 12' thick walls perforated by four huge circular windows ostensibly designed to withstand the intense pressure of space and to protect inhabitants from the blasts of launching spaceships. Levy (bottom) details, "It was a roomy, open set, 120' by 60' wide and probably 35' high, with big plaster columns in the middle and two massive featured columns on either side of a gigantic view screen."

bounced around in there. Many times I was fighting to get the contrast back.

"Each crew member had their own station on the bridge — life science, navigation, et cetera. Each station comprised its own section of the matted dashboard that wrapped around the set in about 120 degrees. When you have enough lights and monitors, you create an ambience,



and that enabled me to light the actors from their dashboards using very small units hidden within the set. If there was a nook or cranny on the set, my rigging gaffer, Darren Gattrell, would get a practical of some sort in there.

"While we had lots of practical lights at eye level, the only way to actually get what I call a clean shot, throwing light across the set, was from up high. One of the advantages of shooting in anamorphic is that it gave us great frame width and not too much height, which actually allowed us more lighting options. I usually framed the headroom pretty close to the top of the actors' heads, so we weren't using a lot of the top of the set, which meant we could lower lights on scaffold tubes just above frame line. My gaffer, Chuck Finch, had several scaffold bars that could plug into the ceiling. When we needed them, he dropped the chains down, attached a scaffold and up went our little backlight rig.

"We could do a great deal of camera movement in there — the sets were designed with that in mind. Felt and rubber pads under the floor deadened the sound of the dolly moving and the crew walking about. My English dolly grip, Colin Manning played the dolly like a violin. The first thing the English do when they go into a soundstage is put down a dance floor for the whole set. They never use track; they just put down the marks and off they go. One shot was so complicated that Colin turned to me and joked, 'I've got more marks than a German banker!'"

Regarding the differences in American and English camera crew

protocol, Levy notes, "After working in Hollywood for so long, I began to find the English crew system fairly cumbersome. Fortunately, I was trained using that system in Australia, so I was used to it. But this was my first time going back to it in about 10 years."

Due to *LiS* screenwriter Akiva Goldsman's complex time-travel plot, the interior of the new and improved *Jupiter 2*, like many of the film's sets, required a number of different, contrasting looks. "There weren't many scenes where we had the same lighting," Levy confirms. "Something new happens in almost every scene set on the bridge of the *Jupiter 2*. I used a sort of film noir style when the spaceship was underway and under control, because Steve wanted to see the bridge and the actors. After takeoff, the Robinsons get into their cryotubes. I had green neon tubing built into them so that when the lids closed, I could add a green light and sell the idea that they were being frozen. At this point the ship goes on 'autopilot,' so it's dim and quiet. I tried to make the spaceship interior look normal so we wouldn't telegraph the sense of danger too heavily. Later, when the Robot tries to wreck everything, fires break out and the lighting changes again — all of the warning lights are going off and there are flashing lights everywhere. After the family travels through time, the spaceship is wrecked and its systems are down, so I used a more theatrical style of lighting to pinpoint what we wanted the audience to look at, and to keep attention off those things we wanted to avoid."

For a sequence in which the *Jupiter 2* hurtles out of control toward the sun, Levy again used extreme overexposure to create interactive lighting on the bridge set. When Professor Robinson and co-pilot Don West open the spaceship's viewport blast shield, Levy hit them with everything he had: "I poured every Dino, Wendy and 20K through the window, creating a searing hot light. There had been little fiery explosions on the bridge itself, so I also put some smoke in the air. Besides my lights, what they saw outside the window was a green-

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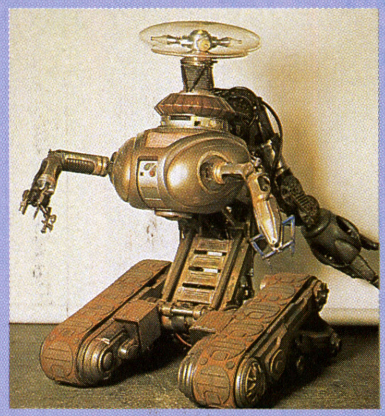
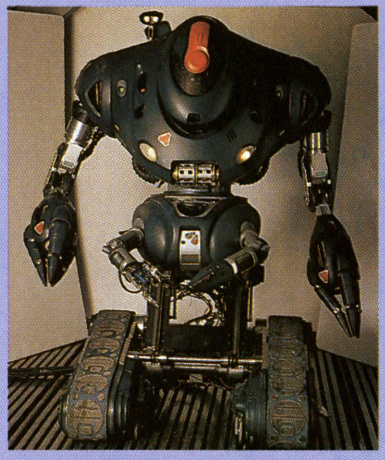
The purveyors of all things cute and furry at the Jim Henson Creature Shop rarely face the types of challenges they encountered on *Lost in Space*: redesigning the Robinsons' iconic Robot, and breathing life into the film's bizarre alien character, Blorp, an entirely computer-generated creation. But the tide has turned at the Creature Shop, where the diligent Henson elves have augmented their trademark line of fuzzy animatronic puppets with powerful hydraulic robots and complex CG lifeforms.

Verner Gresty, the Creature Shop's creative project supervisor on *LiS*, oversaw the fabrication of the Robot — make that two Robots. During a four-week design phase spearheaded by *LiS*' production designer, Norman Garwood, Gresty's crew was encouraged to make suggestions on the Robot's look. "It was nice to be allowed to comment," Gresty says. "At one point, the first Robot had wheels as opposed tracks, but then we discussed various configurations of the tracks, which could be suspended and hinged in different ways. We basically all arrived at a consensus: if it looks right, it is right. The design we finally issued was a practical solution that did actually work. At that point, I started up a computer-aided design department and bought five CAD stations with all of the software. We built the Robot in the computer before we made a single piece."

Gresty describes the pre-space disaster, "powerloader" version of the Robot, dubbed "Big Blue," as looking "almost like an American football player. He's about 8 ½' tall by 6' wide, and weighs about 3,000 pounds. The external cladding initially was going to be vacuformed over a master pattern, but I found that I was losing all of the curves and crease-lines, so we molded everything and cast the pieces in fiberglass. The Robot's central chassis was made up of aluminum plates to save weight, although the main leg joists were 3 ½" slabs of solid aluminum. All of his big movements were hydraulically powered at medium pressure: about 2,000 pounds per square inch. We



used a combination of rotary hydraulic actuators and rams so that all of the axes on his arms worked. His upper body spins a full 360 degrees, and he raises and lowers by some 2 ½' from the legs, which have



angles like a poised desk lamp."

After the first Robot is destroyed, Will Robinson cobbles together a second automaton from bits and pieces found in the Robot Repair Bay. "That's why the new Robot has familiar elements of the TV series' Robot," Gresty explains. "And he's painted a combination of nice soft silvers, more like the original. When you see him from the front, he's kind of cute and cuddly, but he's got this big hydraulic arm behind him, like a scorpion's tail, which can pick people up."

More impressive than the Robots' appearance was the fact that, aside from the character's lack of real artificial intelligence, Gresty's team succeeded in building entirely self-contained mechanisms which could either be puppeted using telemetry systems, or programmed with up to two hours of repeatable actions. He explains, "We designed custom software to drive them, based on some very solid motion-control software that was not prone to crashing. The first Robot is quite a robust item, with about 60 control channels. It took four people to puppeteer it directly on the controls. For all of the stunt scenes, we had record and replay capabilities on all channels, so the Robot could repeat moves within a few millimeters – which meant no surprises for the stuntman while doing multiple takes."

At the opposite end of the effects spectrum was Blorp, a yellow Rhesus monkey-sized alien with blue patches, a large head, big ears, huge eyes, six nostrils, and three-fingered hands ending in sucker tips. The creature is an updated version of the TV show's simian alien, Debbie the Bloop, who was portrayed by a monkey in makeup. For the cinematic version of *LiS*, the Henson Creature Shop's CG producer on the film, Aurelio Campa, headed a team that created the chameleon-like space monkey entirely in CG.

Interestingly, Blorp began as a mechanical puppet for close-up head and shoulder shots done practically on the set, which would be

augmented with a CG counterpart for wider shots of the frisky creature jumping around. "Ultimately, we decided to do Blorp entirely as CG, because we felt audiences have become more sophisticated and just wouldn't buy the animatronic version," says *LiS*' overall visual effects supervisor, Angus Bickerton.

None of the extensive animatronic work went to waste, however. "We scanned our Blorp sculptures into the computer, and used those as the basis for our CG model," Gresty says. "Also, footage of our complex rod puppet provided a reference for the moves and expressions of the computer-graphic version. But obviously, our digital artists were able to do a lot more with skin squashing and stretching in the CG world."

The most exciting aspect of creating Blorp was the adaptation of the Henson Performance System, an Academy Award-winning puppetry device, to directly input the anima-

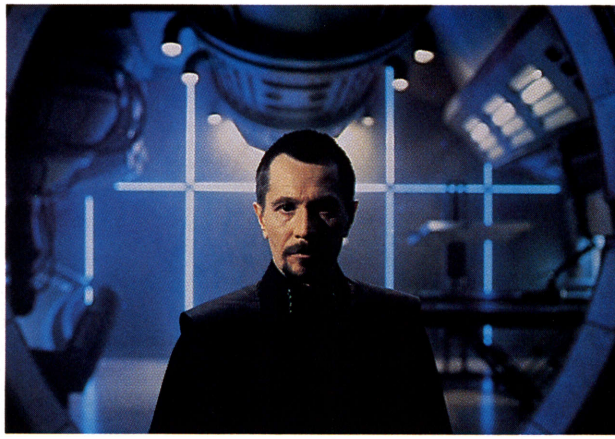
tion of the creature's facial features. Thanks to Henson CG supervisor Hal Bertram, puppeteer Mack Wilson could use this hand-puppeteering tool to record Blorp's facial animation in real-time, just as one would while operating an animatronic puppet.

— Ron Magid

screen, which was going to be replaced by visual effects. That was actually very hard, because I was eight or nine stops over and it was edging into the film. During preproduction, I told Angus Bickerton, the visual effects supervisor, that I could not guarantee that I could give him searing hot interactive light in the spaceship and still protect the green-screen outside the set. I knew that at such a high light level, we'd be getting so much flare and ambient light that it would wash out the green and the effects team probably wouldn't get enough to key from, which turned out to be true. In the end, they took a hard matte line off the edge of the windshield itself. While we were shooting that scene, I had a very funny encounter with William Hurt. He asked, 'Just how bright is it supposed to be out there?' I told him, 'William, it's f-ing bright, the sun's filling the whole window.' He said, 'Give me something I can work with.' I said, 'Look, I'm sorry, William, but this is my first time hurtling into the sun as well!"

All told, the *Jupiter 2* spacecraft interiors filled four Shepperton soundstages. "Besides the bridge, we had the below-decks areas and robot lab on a second stage, and the living quarters and the various labs on yet another stage, plus the Hyperdrive set," Levy remembers. "I made the living quarters as homey and as domestic as I could, in contrast to the below-decks sets, which I kept fairly cold by using a lot of fluorescents built into the set design. The robot lab was a workshop area where I had cold light bouncing off hard shiny surfaces. In there, my Kino Flo racks included the 50/50 — in which half the tubes were tungsten and half were daylight — which gave us a very nice bluish, cold look.

"The Hyperdrive — in essence, the engine room — was an industrial-textured, vertical cylindrical set, three or four stories high and very narrow, no more than 40' across. I told my gaffer, Chuck Finch, 'Just give me what you can on the wall, some highlights here and a glow there,' so he put practicals in every nook and cranny. I had 10Ks in the ceiling coming down as a cold backlight, or what I like to call a separator, because there were supposed to be holes in the ship leading to the outside — at that point in the story,



the vessel has crash-landed on a planet. I kept the lighting down and suggestive wherever I could, which stood in good contrast to this warm golden lighting effect I had coming from 5Ks and 10Ks I'd placed down below floor level shooting up. The golden light was supposed to represent the interactive lighting from the time portal."

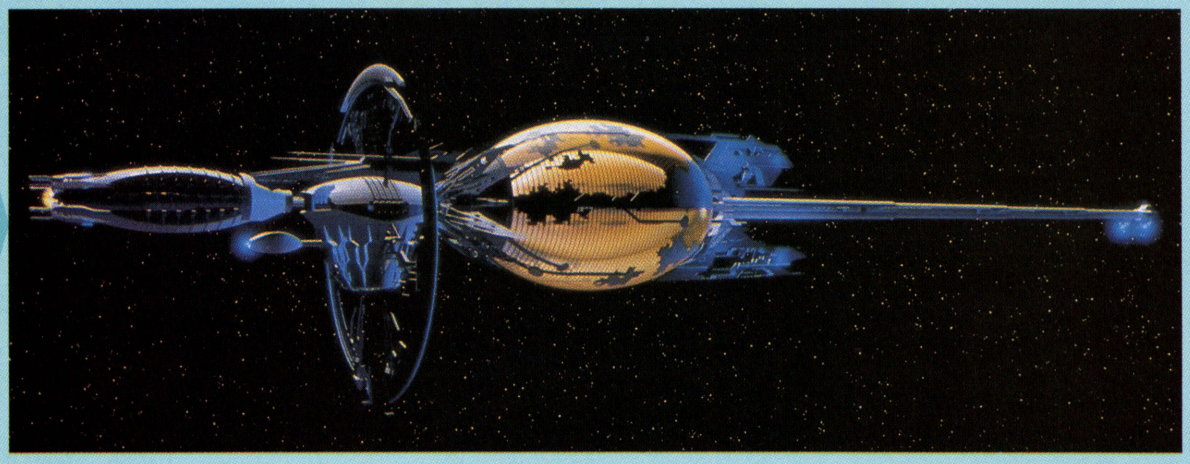
Another major set was the *Proteus,* a deserted spaceship the Robinsons discover after they come out of a time warp, which filled two soundstages. When the Robinsons go aboard — true to the movie's TV series roots — they are attacked by giant space spiders. "Steven explained to me, 'This is a haunted house,'" Levy recalls. "The characters started off in the loading bay and worked their way deeper into the ship as they get toward the bridge, so we had a couple of light changes. The main corridor of the *Proteus* was a 180' long tube with airlocks at either end that decreased in diameter from 45' wide down to 25'. It had the effect of

Continued on page 50

Opposite: The two incarnations of the Robot. The second version (top) reflects the design of the popular character seen in the *Lost in Space* television series. Center: Shooting with an animatronic alien discovered by the Robinsons. Above: Dr. Zachary Smith (Gary Oldman) is bathed in icy malevolence.

Souping Up the *Jupiter 2*

It's rare to have the opportunity to re-create an icon in your own image. Just ask Peter Mitchell Rubin, digital art director for *Lost in Space*. "I really feel lucky," says Rubin, who recently designed the *Lewis & Clark* spacecraft of *Event Horizon*, and who will now be known as the man who helped reinvent the Robinson's runaway spaceship, the *Jupiter 2*. But just what exactly is a digital art director? "I got that title because that's pretty much the way I work — I do 2-D and 3-D design and some animation on the Macintosh, using Form Z and Electric Image."



Rubin's designs for the ominous *Proteus* and the amorphus, egg-like *Jupiter 2*.

Director Stephen Hopkins, production designer Norman Garwood and visual effects supervisor Angus Bickerton approached Rubin's company, Production Arts Digital Inc., about doing some previsualizations of key *LiS* effects sequences, which led to Rubin creating various spaceship designs, including that of the *Jupiter 2*. As they discussed the look of the Robinsons' spacecraft, there was some debate about just how closely they should adhere to the look of the original saucer-shaped craft. Ultimately, they arrived at a solution whereby they could have the old *Jupiter 2* and a new one to boot. "There was a terrific sequence in the original script in which the Robinsons blasted off in a rocket ship, which dropped away once it was in space to reveal the second stage, which was actually a flying saucer," Rubin recalls. "That got modified a bit and we wound up using the classic version of the [TV series'] *Jupiter 2* as the launch shell, which we called the *Jupiter 1*. The shell breaks away once it enters orbit, becoming a sort of launching station for the second-stage, redesigned *Jupiter 2*."

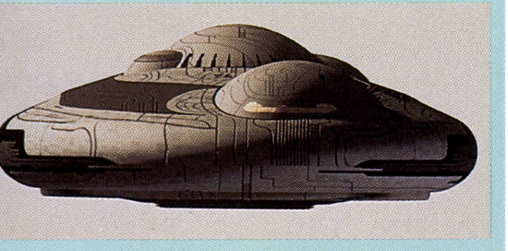
The new *Jupiter 2*, which Rubin describes as a "this very modern, elongated, saucer-shaped ship," was the result of sketches by Garwood, Bickerton, Hopkins and, of course, Rubin, with a dash of 1960s comic-book style thrown in for good measure. "[Director] Stephen Hopkins loves the comic art of Jack Kirby, so we looked at his work — as well as that of other comic-book artists — for a lot of inspiration in terms of our approach," Rubin reveals. "I then took everything everyone had done and, guided by Norman, synthesized it into a final shape, which was initially based on the flying saucer profile of the *Jupiter 2* from the TV series. I rounded the edges and kept some of the elements from the original ship, then stretched it out so it became this ovoid saucer shape with various blisters on it."

While it only took Rubin and company a few weeks to get the overall shape of the *Jupiter 2* worked out, there were a number of large- and small-scale iterations before the design was finalized. "The last design was version number 30," Rubin says, "although some of those changes involved very minor adjustments. We wound up using elements from earlier designs; at one point, we'd beefed up the size of the rear engine, only to end up using an earlier version which featured numerous rear engines, which were actually very small relative to the size of the ship. Because the *Jupiter 2* was designed completely in 3-D, I could often take a chunk out and put another piece in digitally, although sometimes I had to step backwards to re-create the shell of the ship before we cut into it in different ways. It's a terrific way to work, and Norman and Stephen enjoyed it, because instead of looking at just a 2-D illustration, they could quite quickly see not how the ship would look from all angles."

Many of Rubin's design iterations were inevitable because the

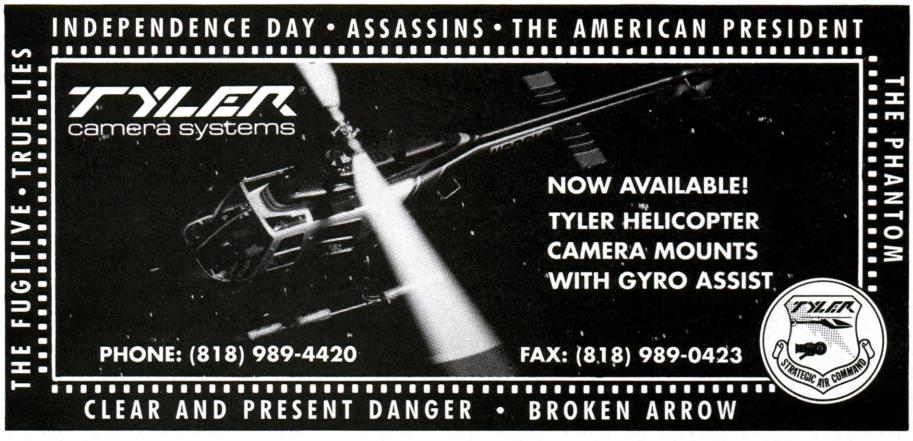
Jupiter 2 envisioned by the creative team "has got some surprises. It's very smooth and sleek to begin with, but it does transform. We designed a sequence where the ship goes into hyperspace, and we see it transform from this sealed, perfect flattened egg shape into something that looks almost scarab-like. These elongated irregular shaped panels extend out horizontally from the sides of the ship, retaining the curved shape of the sides as they come out, and exposing the inner machinery of the ship. Then various panels pop out from the top and the back, generating an energy field that coalesces around the ship to send it into hyperspace. I hope it'll be a pleasant surprise."

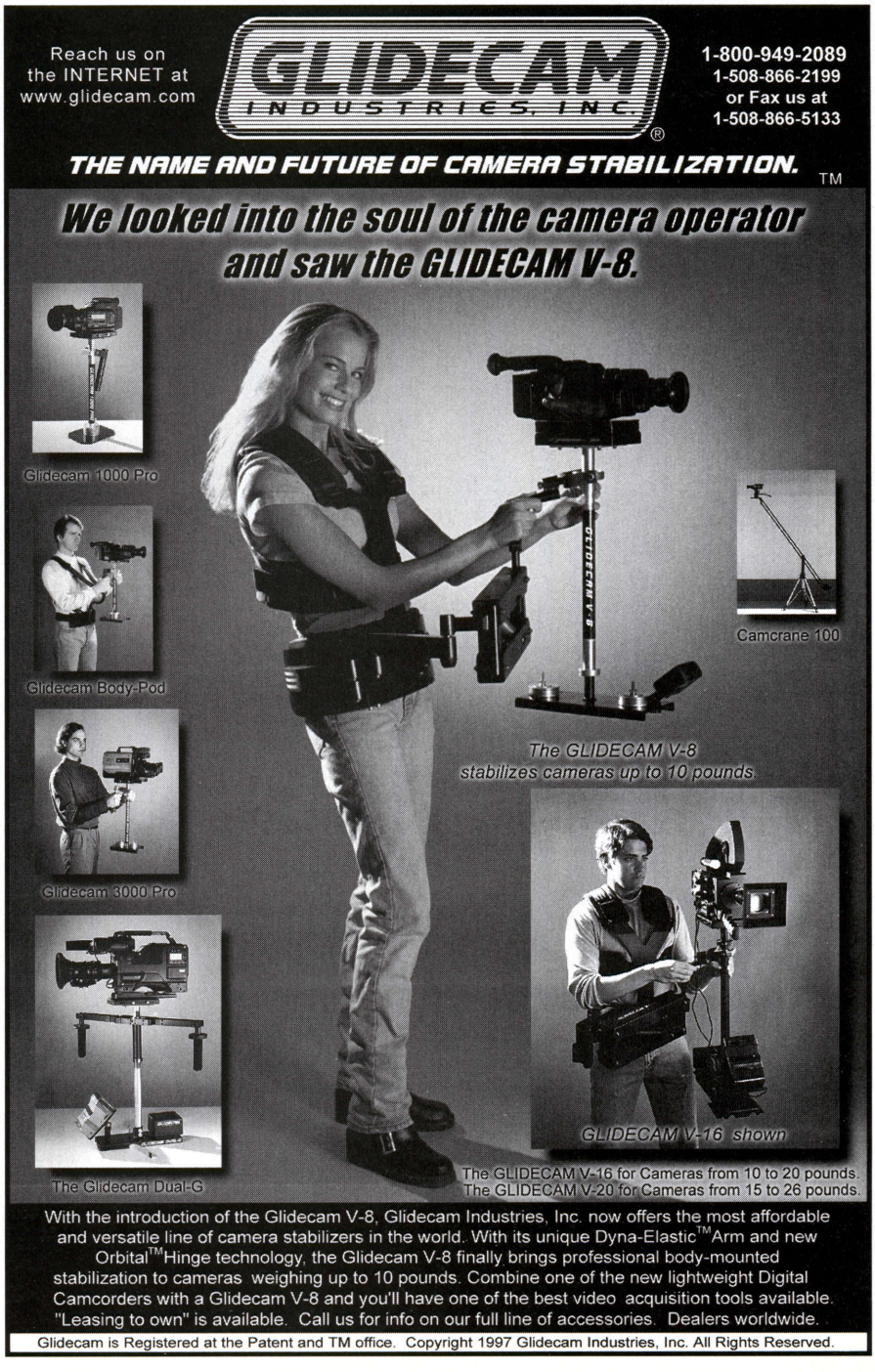
After designing the *Jupiter 2* with the assistance of Production Art



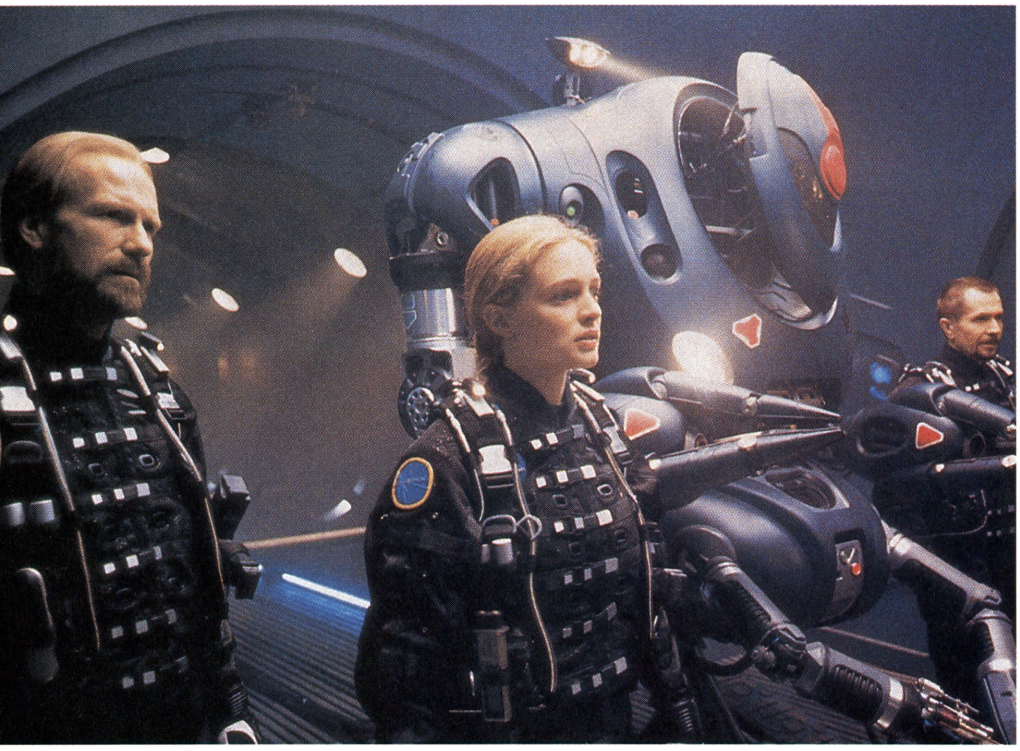
Digital's Dan Slavin and Anthony Longman, Rubin and company continued doing animatics and various other design concepts for *LiS* — including those for the terrestrial Launch Dome and the derelict *Proteus* spacecraft. He left the production as his wife was about to give birth to their daughter.

While Rubin is thrilled to have had the opportunity to contribute to *LiS*, he's less than thrilled with the title of digital art director: "I'm not crazy about the term, frankly, because I don't think it necessary for there to be a distinction. Eventually there won't be any distinction. My work is my work, regardless of how I accomplish it." — Ron Magid





Space Family Robinson



The *Jupiter 2* crew explores the *Proteus*, a deserted spaceship. "Steven [Hopkins] explained to me, 'This is a haunted house,'" Levy recalls. "The main corridor was a 180'-long tube that decreased in diameter from 45' wide down to 25'. I had about 30 10Ks shooting through holes in the ceiling, which were incorporated into the set design at 20' intervals."

a forced-perspective set, but it was designed to be that shape. It also had an elevated mesh walkway, which I used to light the actors from underneath. I also had about 30 10Ks shooting through holes in the ceiling, which were incorporated in the set design at 20' intervals. I had four or five lights in each ring, and as the actors walked through the corridor, the next ring would turn on. We had a bit of smoke in the air to define the beams. Those lights were slightly warm; I wanted to go against type, which also created a counterpoint to our colder blue light later. Obviously, with any monster movie, you don't want to see too much of the monster or where it could be, so I lit for deep shadows and half-light. I took the opportunity of adopting a more dramatic style."

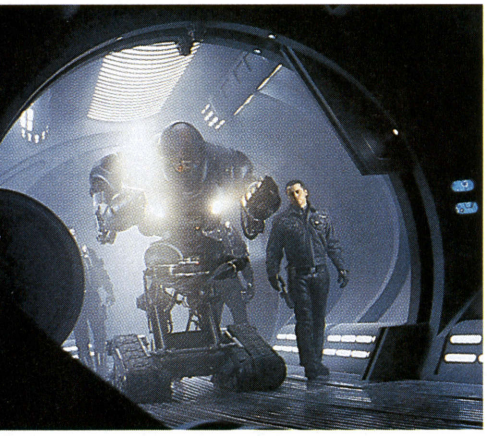
The *Jupiter 2* finally crash-lands on an alien planet featuring a crimson sky, as well as a bizarre tear in the space-time continuum: a time portal. The planet surface set occupied Shepperton's mammoth 300'-long Stage 4 and had to be constantly redressed and re-lit to appear to be the same place in different periods of time — past, future and present. To help sell the illusion, the production built two versions of the spacecraft's landing leg and a portion of its main structure: one that was merely crash-damaged and another that was rusted and decayed from years of exposure to the elements (the upper part of the ship was matted in). There was even an artificial river running through the center of the stage, which became a dry riverbed in the future-set sequences. "There were a couple of distinct looks we had to create on that set, sometimes simultaneously," Levy notes. "At one point, the planet surface is covered in snow and it's twilight on one side of the time portal, and sunny late afternoon on the other. I shot the twilight side with ½ CTB gels, which was shorthand for dusk and cold snow. Because I feel that blue light looks fake, I used white flame green, a brute arc correction gel, which gave me a more monochrome silvery hue. I think I also put a ½ Pro Mist on the lens, just to take the edge off it so we could counterpoint it with the bright sunlight look just across the time portal, which I created using ¼ CTO and ¼ straw gels. Later, the planet had a burnt-out look where what was once foliage is charred remains. I accentuated that with a bit of straw gel, which tends to go a little more contrasty than CTO. I used very warm tones for the planet, adding a lot of color there — more for its emotional implications than visual behavior, to make the audience feel uncomfortable."

Levy once again overexposed his stocks to create interactive lighting for the time portal effect that frequently bisected the stage. He explains, "I'd have snow and cold blue light on one side that I was keeping 1⅓ stops under, and a warm exterior on the other, with this active warp between the two environments, which was added later as a CG element. To create that threshold, I supplied [visual effects supervisor] Angus Bickerton with a 6'-wide searing hot white band of light, five or six stops over, in that center section of the set. Where the set washed out, Angus would add visual effects to create the time portal.

In order to change his lighting for each of the different time periods and times of day, Levy supervised a massive pre-rig on Stage J/K. "The whole ceiling was rigged with Dinos and 20Ks, which generated over a million watts of power," Levy marvels. "The main set lighting was all done from on high, all going through a computerized dimmer system so we could make our changes fairly simply. I had very few of the lights on the floor; occasionally I'd hide a 5K or 10K behind a tree. I tried to keep everything backlit and keep the levels high enough so we'd get our own ambient fill from light bouncing off the floor and walls. It was tough for the construction department to keep up

with us; in fact, we caught up with them. We'd have to wait for the sets to be finished before we could get in there and pre-light. Some took two to three weeks to pre-rig and pre-light, so my gaffer and I would duck over to another stage whenever we got a chance and work over the weekends to get it ready."

While Levy chose to consistently shoot at T4 on virtually all of the other *LiS* sets, he chose deeper stops to create a greater depth of field for the planet exterior. "I wanted it to look like a real place, so I'd go for a T8 or 11," Levy says. "You shouldn't have a shallow depth of



field on an exterior. To further create the impression of greater depth, I used smoke for its layering properties, so the distance stuff would look less detailed and a bit more washed-out. The sky was a CGI component, so we would shoot wide with a locked-off camera or motion control, matte out the studio wall and replace it later. Whenever I smoked the set, I had to do a clean pass for matting purposes. If we were doing an action scene, we'd shoot with Steadicam and simply put hash marks on the greenscreen and let the computer track the effect in later. But for our more formal shots, we'd use motion control. There were huge amounts of live-action motion control on *Lost in Space*. You can imagine the difficulty of going to the studio every day for 120 days and doing these sorts of shots, but it was the only way to get them. We averaged no more than five setups a day."

Levy calls *Lost in Space* "the second-biggest film I've been involved with, after *Cutthroat Island*. I've done a lot of big-budget action films, and the main thing to keep in mind is to come at it like a filmmaker. The purpose to which you're applying your skills is still to create an emotional response from the audience. As Gordon Willis says, 'The idea comes first; without the idea, the execution has no purpose.' Of course, when a movie gets this big, the logistics are huge. It's like running the post office. *Lost in Space* was a juggernaut — it had a life of its own." ■

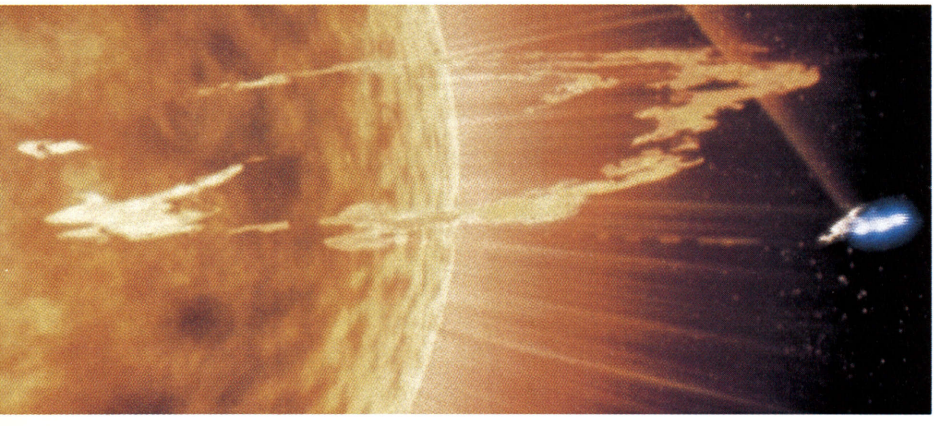
On the Galaxy's Cutting Edge

An array of English effects houses contribute impressive sci-fi scope to *Lost in Space.*

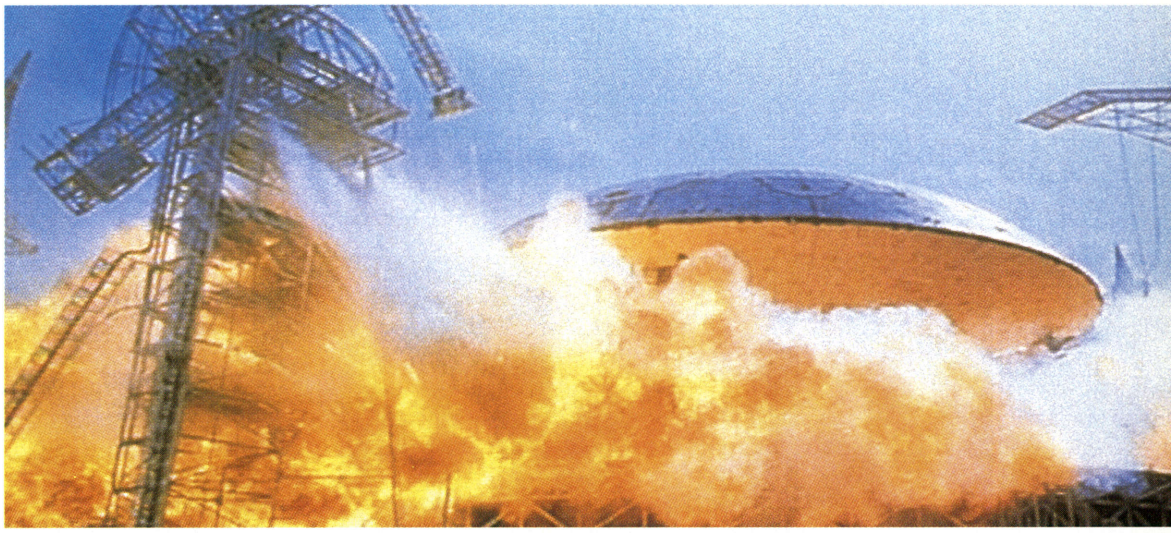
by Ron Magid

An enormous number of visual effects shots — more than 770 in all — were demanded to create the brightly-hued galaxy of *Lost in Space.* New Line Cinema and director Stephen Hopkins therefore enlisted a consortium of separate English effects houses located in London's Soho district to add jaw-dropping scope and spectacle to their event picture. The Brits rose to the occasion with imagination and flair, and while the terms "quality effects" and *"Lost in Space"* may once have been a contradiction in terms (considering the 1960s television series' playful offerings), this high-visibility feature project seems destined to put the British Empire back on the effects map.

Spearheading the huge undertaking was visual effects supervisor Angus Bickerton, an Englishman whose only other major feature credit is last year's live-action *Pinocchio,* which was largely successful due to some effective efforts in bringing the storied wooden boy to life. But Bickerton has a broad background which made him an ideal choice to take on the diverse array of effects conundrums presented by *LiS.* He notes, "I was very fortunate to work my way up at The Magic Camera



Photos courtesy of New Line Cinema.



Company, a traditional bluescreen stage/motion control house — from running the rostrum motion-control camera to doing a bit of effects lighting, straight miniature photography and so on. They really gave me an opportunity to try everything. Eventually, after I chased down a few low-budget films [for visual effects contracts], they let me supervise those jobs in-house. We used one of them, *Cyberjack,* as a springboard for Magic Camera Company's first foray into full CG and digital effects. After that, I went on to *Pinocchio,* which was really my first big break, following which I was offered the chance to do *Lost in Space.*"

Bickerton immediately began parceling out shots for *LiS* to the London-based effects houses he knew and loved. "We're working with just about everyone in Soho," Bickerton says proudly. The list is formidable: Cinesite London, Computer Film Company London, CFX Associates, Electric Image (not to be confused with the U.S. software maker), The Film Factory at VTR, FrameStore, The Magic Camera Company, Men in White Coats (formerly Complete Video), Rushes (an offshoot of CIS), The Henson Creature Shop, and a small CG company called AMG. "For animation, we've been working with Passion Pictures and Uli Meyer Animation Ltd," Bickerton adds. "All told, we're working with 11 post houses and two animation houses. That's *13* . . . Uh oh, we'll have to add another one! In that case, we may be starting to work with a company called The Mill Film."

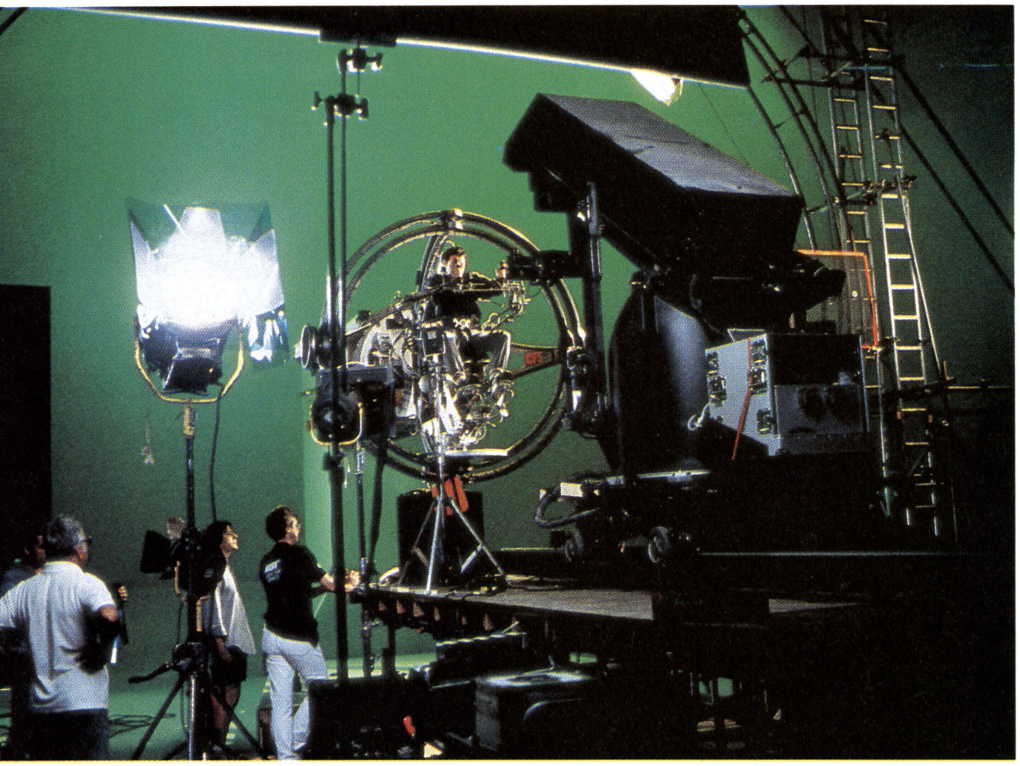
The lion's share of the *LiS* work was tackled at Cinesite, FrameStore, The Film Factory at VTR, and The Magic Camera Company (each of which handled over 100 shots apiece). Bickerton had initially hoped to divide the shots according to subject; for example, giving all of the *Jupiter 2* spacecraft shots to one company. "That was my original intent," he sighs, "but it just didn't work out like that because there's been such a crossover of elements from one company to the other. We have files crossing town by nothing other than 'runner-net.' Fortunately, each of these companies are literally within two or three minutes of each other."

Wherever possible, Bickerton assigned entire sequences to individual houses. For example, he gave the film's pivotal opening sequence, involving 60-plus shots, to his friends at The Magic Camera Company. Director Stephen Hopkins, no doubt eager to put as much distance between his theatrical production and the 1960s TV series as possible, wanted something with a little kick to jump-start *LiS* and introduce the Robinson family's sidekick, Major

Opposite: The *Jupiter 2* hurtles towards the sun. Electric Image used Wavefront particle systems to animate Old Sol's boiling surface, which was augmented with composited "solar flares" — pyro elements shot at 360 fps. Above: The Robinson's *Jupiter 1* craft takes off. The 1/50-scale miniature was photographed against real sky on the backlot at Shepperton using Photosonics cameras running at 360 fps.

On the Galaxy's Cutting Edge

Don West (played by Matt LeBlanc). What better way than with a dogfight high above Earth between flying wings, called Bubble Fighters, operated by pilots swinging inside glass gyroscopic cockpits? "Steve really wanted a physical flying experience to introduce the Don West character, rather than just having him sitting in a cockpit," Bickerton says. "In preproduction, we evolved this idea of the pilot sitting in a glass bubble with three axes of movement — pitch, yaw and roll — in a craft that would respond to whatever movements he made. So if the pilot swung his gyroscopic rig over to the left, then the craft would bank left as well."



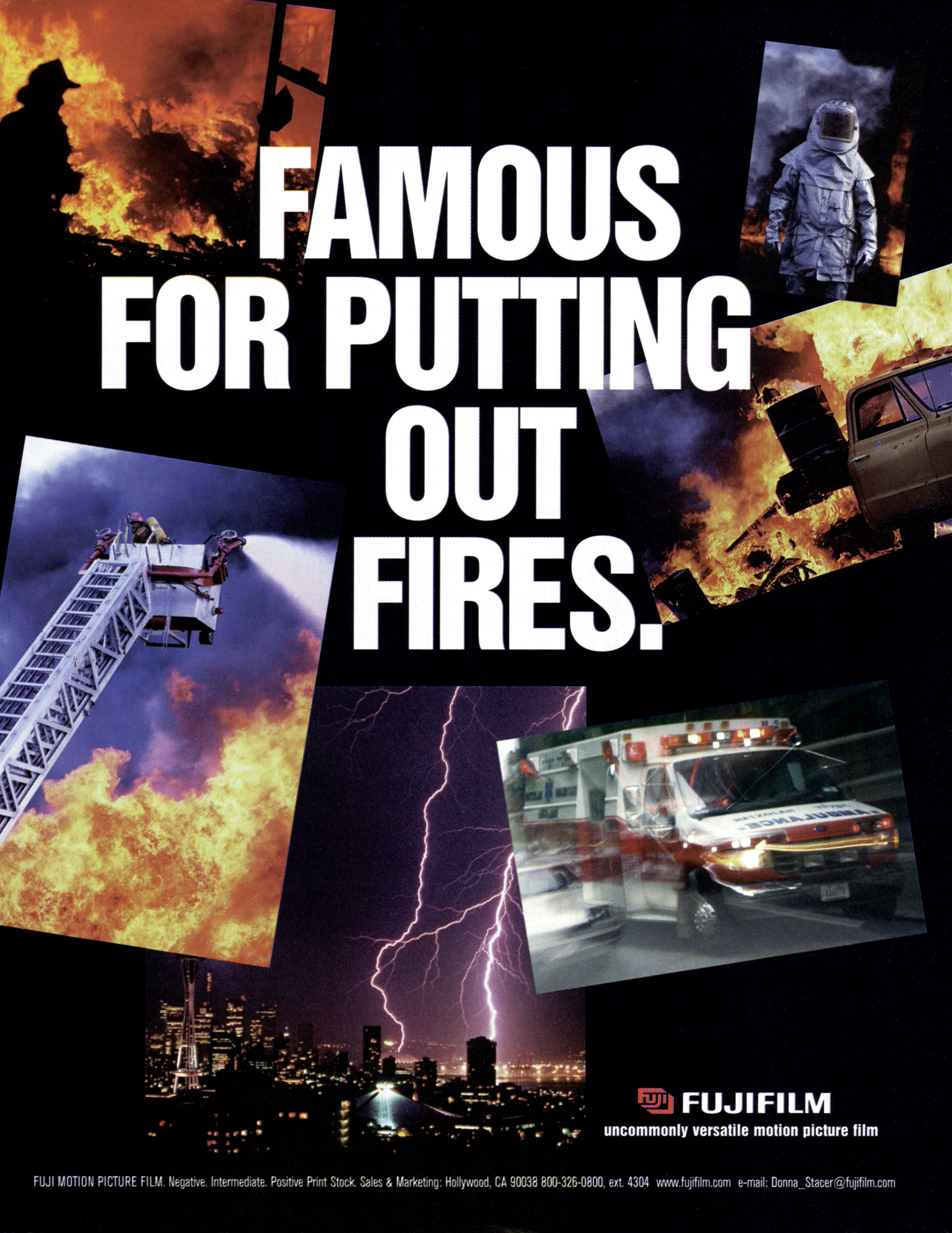
Actor Matt LeBlanc being shot on the Bubble Fighter greenscreen stage. Explains Bickerton, "Nick Alder, the physical effects supervisor, built a gimbal rig with the actor seated in a cockpit mockup in the center. The actors could pitch forward and yaw from side to side about plus or minus 30 degrees, and they could roll 360 degrees." The rest of the craft was then composited in around them.

Of course, shooting an actor inside a glass sphere would be difficult to light without getting reflections in the glass, and almost impossible to shoot against blue- or greenscreen. Bickerton's solution was to create the glass dome, along with the rest of the Bubble Fighter, in CG. "That way, we could light the actor without getting reflections," he explains. "Nick Alder, the physical effects supervisor, built a gimbal rig with the actor seated in a cockpit mockup in the center. The actors could pitch forward and yaw from side to side about plus or minus 30 degrees, and they could roll 360 degrees. We shot the actors in the cockpit against greenscreen, and then the rest of the craft was CG'd in around them."

Bickerton's inspiration for the dogfight choreography came from an unlikely source: "There's a great shot in the car chase in *Bullitt* over the hills of San Francisco, when the cars hit the final bump and the camera crash-zooms out as the cars veer close by the camera. So we did crash-zooms like that. We'd start tight on the various actors, following them with a long lens, and then crash-zoom out as they whizzed past the camera. We used real-time motion control equipment. If we wanted them to appear to fly past camera, we tracked the camera towards them, just as we would while shooting a motion-control spacecraft. We also craned wildly around them and deliberately tried to be as kinetic as possible."

After two weeks of intensive greenscreen shooting with actor Matt LeBlanc, The Magic Camera Company married the motion-control shots of LeBlanc in the cockpit into the revolving glass gyrosphere on the front of their CG Bubble Fighter. The heroes' ships were rendered silver with bright blue and yellow highlights painted on their sides, reminiscent of the battle colors on Mustang and Corsair fighter planes during World War II. These vessels stood in marked contrast to the insect-like enemy Sedition Raider ships, which look like flying M's in drab desert camouflage. In the end, West repels the attackers and saves a partially constructed Hyperspace Jump Gate circling in low Earth orbit. Audiences are unlikely to realize that the battle, as Bickerton proudly points out, is "an entirely virtual sequence done apart from the actors."

The action quickly moves to the Robinsons' home, situated in a vast Houston-Austin-Dallas megalopolis, as our heroes prepare for their ill-fated space voyage. Hopkins wanted to do a shot connecting the Robinson family home to the towering Launch Dome from which they would embark on their mission to a distant planet. "Stephen wanted to do a pan out of the Robinson's home, fly with some airborne traffic through the city, and then tilt up on the Launch Dome," Bickerton says. "This single shot is actually composed of three or four motion-control shots, featuring eight or nine key 1/500-scale miniature buildings. Electric Image built a complete digital metropolis, and texture-mapped photos of our miniature buildings — flat-lit and internally illuminated — onto their CG building-block city, thus extending our miniature motion-control shots. For the tilt-up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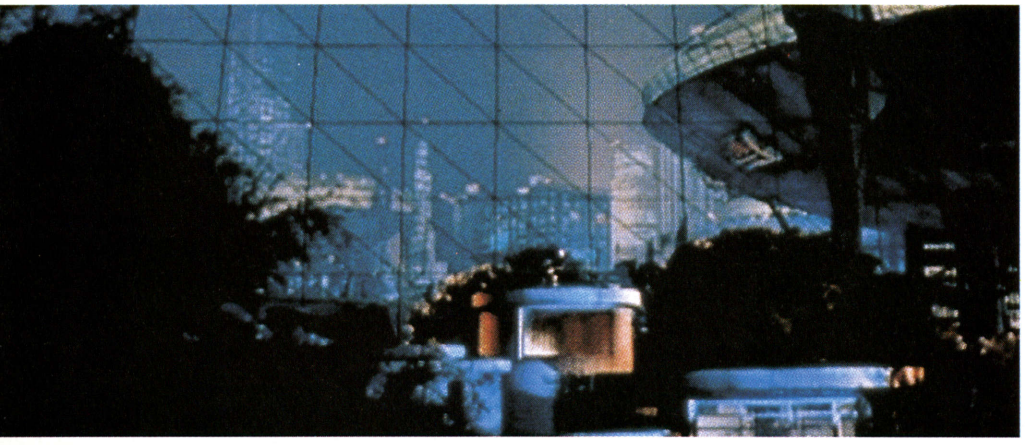
On the Galaxy's Cutting Edge

to the launch site, Electric Image tracked our miniature Launch Dome into our miniature city and finished it off with some CG background buildings."

The Launch Dome is perched atop a spindly space needle towering 10,000 feet over the urban sprawl. Bickerton decided to construct the launch site using a combination of variously scaled miniatures and CG. "Steve Hopkins challenged us with the scope of his ideas," Bickerton admits. "Basically, it just looked cool to have this very tall tower projecting up into the sky over the city. We built a 1/400-scale exterior Launch Dome that was 8' in diameter and consisted of only the top section, which we actually shot outside in daylight. We also built a 1/1000-scale, 2'-diameter exterior Launch Dome, which we only used in wide shots of the full tower. Electric Image did all of the downward angles from the Dome, effectively creating a view looking 10,000 feet down on the huge metropolis."



A portion of the domed Houston-Austin-Dallas megalopolis built by Electric Image. The digital metropolis was created in wireframe, with texture-maps of miniature buildings — flat-lit and internally illuminated — added later.

One of Bickerton's more complex effects challenges was for a seemingly mundane sequence in which Professor John Robinson (William Hurt), Don West (LeBlanc) and a General (played by Mark Goddard, the original TV-series Don West, in a cameo) walk across a horizontal gantry towards the first-stage *Jupiter 1* craft inside the Launch Dome. "To show the enormous scale of the Launch Dome, we wanted to do a shot where we followed the three characters walking through this incredibly long gantry, then panned with them to reveal the *Jupiter 1*," Bickerton reports. "But in order to put the people in the shot, we had to do motion-control moves on the live action, combined with matching moves on our 1/10-scale miniature gantry section and our 1/100-scale interior Launch Dome miniature."

Bickerton employed the Milo motion-control rig, which was operated by Ian Menzies of Motion Control Cameras, to record each of the shot's three layers. Manufactured by Mark Roberts, the Milo is a solid, fast-moving motion-control system, which makes it excellent for real-time work. The rig's speed is derived from an eccentric design based on off-nodal axes; specialized software compensates for the Milo's anodal dynamics. Hopkins pushed for a predominantly UV blue look in the live-action Dome set, which necessitated shooting actors Hurt, LeBlanc and Goddard with the Milo motion-control rig against greenscreen. After working out just how far the actors must appear to walk within the shot, Bickerton and Menzies realized that they would never have enough motion-control track. Their solution was elegantly simple: "We had 80' of track available, but they actually had to walk much further than that, so we set up a treadmill on the stage against greenscreen," Bickerton details. "We worked out how fast we wanted the actors to walk, then cranked the treadmill up and tracked our Milo rig past them as fast as we could. We actually matched the camera tracking speed to the treadmill so it would effectively look as if they were just walking past camera normally and we were panning with them. The key point of the motion-control move was when we were closer to the actors, but I realized that there came a point where they were so far away that we didn't need to continue our camera move on them — we could just track them into the final composites. So as we gradually ran out of camera track, we eased our speed off while the actors continued walking on the spot against greenscreen, then took our best guess as to what the pan over to the nonexistent spacecraft should look like."

Next, Bickerton and Menzies set up their 1/10-scale gantry and 1/100-scale Launch Dome interior miniature on stage and calculated the matching motion-control move that would effectively blend the two different scales of models and the live action. "We placed the two miniatures on either side of the Milo," Bickerton recalls. "We first shot a scaled-down match-move from the live action on the gantry miniature. Then we swung the Milo rig around 180 degrees, poked it into the Launch Dome miniature and saw how that lined up with the 1/10-scale gantry. If it all sounds very complex, it's because it was — it did my head in! Ian and I worked for literally a weekend trying to get the move to work out. But that shot, which we finished at Cinesite, is absolutely flawless in terms of matching up the motion-control moves; in the end, it all locked together."

As the first-stage *Jupiter 1* prepares to launch, 16 doors composed of four sliding triangles flower open at the Dome's apex, clearing the way for takeoff. Rather than building a

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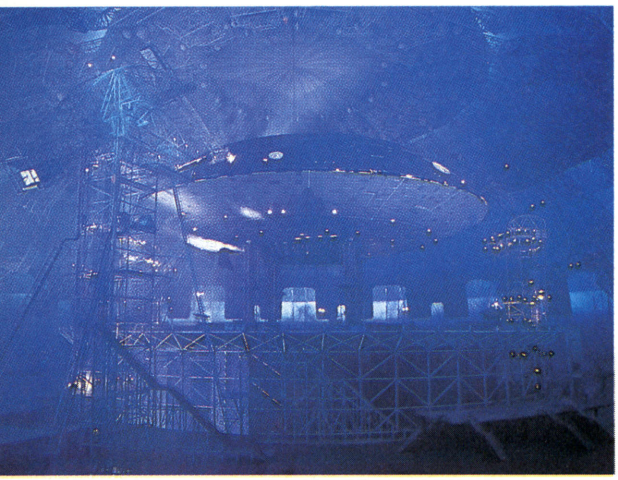
On the Galaxy's Cutting Edge

cost-prohibitive servo-motorized miniature, Bickerton opted to use a combination of models and CG: "We basically built miniatures with the doors in just the open and closed positions. We also used a miniature for the first points of the Dome opening, which revealed a shaft of light coming through the top.



The 9' *Jupiter 1* model inside a 17'-diameter interior Launch Dome miniature. "That was all shot on stage at The Magic Camera Company, with motion control in a smoked environment," Bickerton recalls. "But even then the scale was not great. The *Jupiter 1* was meant to be, in reality, close to 500' across, so the 9' model worked out to 1/200-scale."

Stephen wanted a helicopter shot flying around the Launch Dome as the doors opened. That proved too expensive to do as miniature, so we used a CG model of the structure for the aerial shot."

In keeping with *LiS*' retro-modern aesthetic, the takeoff of the *Jupiter 1* saucer is surprisingly restrained. "We were going for a very low-tech, *Apollo 13*-style launch," Bickerton explains. "The *Jupiter 1* is a flat disk, like a UFO, so we launched it vertically. Once the doors of the Launch Dome were opened, we could see the sky above, so we shot eight or nine low-angle cuts of 1/50-scale miniature engines firing up and gantries pulling away on the back lot at Shepperton. We built specific 6' by 8' close-up sections of the engines up on a rostrum and photographed them against real sky using Photosonics cameras running at 360 fps. Jose Granell, the model unit supervisor, oversaw the pyro effects; later on, we literally tracked the *Jupiter 1* miniature to the initial ignition of the engines."

Bickerton avoided some compositing issues during takeoff by shooting a 9' *Jupiter 1* model inside a 17' diameter interior launch dome miniature. "That was all shot on stage at The Magic Camera Company, with motion control in a smoked environment," Bickerton recalls. "But even then the scale was not great. The *Jupiter 1* was meant to be, in reality, close to 500' across, so the 9' model worked out to 1/200-scale. For the actual liftoff, we did a motion-control tilt up of the *Jupiter 1* model, which was shot on stage at Shepperton."

After this "very conventional launch," Bickerton continues, "all of the shots of the *Jupiter 1* climbing into Earth's orbit were done with a CG ship built by Electric Image and based on our motion-control miniature, which they did a phenomenal job of matching. The saucer-shaped *Jupiter 1* then splits apart in pie-shaped sections to reveal our new high-tech *Jupiter 2*, a very simple egg-shaped craft made complex with lots of detail on the surface, which was built as a 6'-wide motion-control model. Steve [Hopkins] pushed for the ship to have an asymmetrical design, and there's not a repeating shape anywhere on it."

The Robinsons finally get lost in space thanks to some nasty sabotage by the nefarious Dr. Smith (Gary Oldman), whose meddling sends the *Jupiter 2* hurtling toward the sun. The crew soon realizes that since they can't maneuver around the sun, their only hope of survival is to fly *through* it — in hyperdrive. Electric Image used Wavefront particle systems to animate Old Sol's boiling surface, which Bickerton's crew augmented with composited "solar flares" — pyro elements shot at 360 fps. The craft cuts a temporary hole in the sun and then emerges covered with boiling sun matter, but that isn't all. "As it's going into hyperspace, all of the flat surfaces on the *Jupiter 2* expand into these intricate panels," Bickerton reveals. "The ship then takes on a much more complex shape as all of these veiny sections grow out of it, which effectively collect the power for going into hyperdrive. Electric Image did a really phenomenal job of building a fully-CG *Jupiter 2* based on our 6' model. It's a huge model in terms of the polygon count. They did about 38 shots for the five-minute sequence in which the ship stretches and accelerates, along with a lot of hyperspace warp-type effects."

Inside the *Jupiter 2*, the effect on the Robinson family and crew is staggering, with time momentarily standing still as the ship leaps into hyperspace. "Everyone gets frozen in place for a good 10-second shot, an effect we created with a gag involving an array of still cameras," Bickerton states. "We wanted to push it so that we'd actually track around the characters as they were hovering immobile in mid-air. We first used the Milo rig fitted with an old 8-perf VistaVision camera; the camera was equipped with a 200' Arri mag built [originally built for legendary effects practitioner Derek Meddings] so that we could shoot a background plate inside the *Jupiter 2* — filming at about three frames per second. We could put a Nikon lens on the camera, which matched the Nikon lenses on our still-camera array. Then we set up the Milo rig to repeat the move on our greenscreen stage. Nikon U.K. provided us, free of charge, with 10 F5 35mm still cameras, which we positioned at intervals along the arcing motion-control path. Ian Menzies wrote a little program so we could fire the cameras sequentially as each actor did running jumps and dives through the air. While 10 cameras may not seem like enough for a 10-second shot, I thought we'd have more lineup jitter problems if we used more; I figured we'd be better off if we actually used fewer cameras and synthesized the in-between frames. Cinesite used their variable-speed software, called Cinespeed, an intelligent morphing

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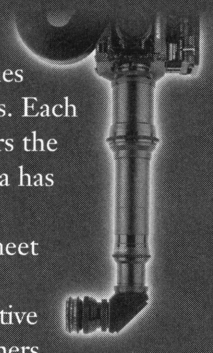

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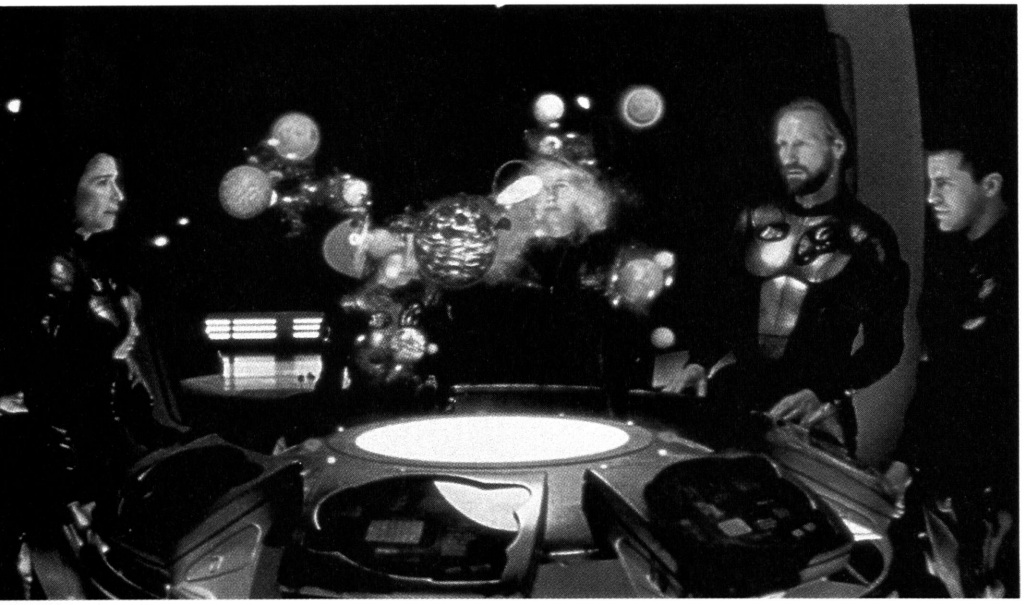

The Robinsons gather around a holographic stellar display. Director of photography Peter Levy, ACS used Kodak's fine-grain EXR 5293 for the majority of his plates. "We had a lot of interactive lighting. For instance, if somebody activated a holographic navigational instrument, we had to design an interactive light emanating from the hologram, as well as lights that would correspond with other effects we hadn't seen yet."

system, to create the 30 intermediate frames between each of our 10 camera positions. In actual fact, the effect was almost too good: the actors looked just like shop-window dummies. We ultimately sequenced the cameras with a time interval from cameras 1 to 10, so the actors would actually be partially moving in the final shot. What helps makes the effect work is the way Steve cut it: there's all of this furious activity leading up to them going into hyperdrive, followed by literally 20 seconds of peace with no sound whatsoever, as we're just moving silently around the figures. And then *crash!* — the *Jupiter 2* comes out of hyperspace. It's a strong moment."

Since the alien planet where the *Jupiter 2* finally crash-lands was entirely stagebound, Bickerton used a large raking landscape miniature built on Shepperton's backlot, along with some cut-and-paste digital matte shots, to extend the set. While Bickerton feels that "opening up the planet was the hardest thing to do," devising the story's time-portal effect, which appears in the middle of two diametrically opposed time frames on the planet, was one of the most interesting. "The idea is that each time zone is captured within a transparent dome, so you can see — by the way the lighting in the landscape changes — the definition of where the time zones are. Steve [Hopkins] wanted to get away from the watery look of time-travel effects, and pushed for a very hard-edged distortion. For instance, when Don West and Professor Robinson walk from one zone to another, it's like walking through a glass wall. They can't see it, but as soon as they make contact with this totally transparent wall, boy do they know it — the surface shatters as they enter. That's followed by a transition area of about 8', a bright slice of light in the middle of two different time zones on either side, which was created on-set by our cinematographer, Peter Levy, ACS. The atmosphere in the area is very thick, and the characters have to wade through it to get across the portal.

"To create the effect of walking through the portal," he continues, "we spent one long afternoon doing multiple motion-control moves where we tracked with the actors as they went through the portal. Each time we repeated the move, they would move slightly differently. My original idea was that we would morph together some of the various takes of them stepping through — the background would be the same, but the differences in performance would make them distort. Peter also suggested trying bits of diffusion, so we shots separate heavy-diffusion passes of the actors walking through again so we could perhaps introduce a diffused effect as they walked through the middle of the portal. We used all of these ideas in varying degrees to create this middle area of total flux. As Don and Professor Robinson step into that chaotic crossover area, lumps of time are speeding from one time to the other, and literally pass through them as they walk through. Then the time portal very rapidly closes up behind them, with hard refractions and distortions. Ultimately, Cinesite created the glasslike refractions and distortions of the surface as they walked through."

Lost in Space's most impressive sequence, however, may be an alternate-future encounter between the Robinsons and a mutated Dr. Smith, who has transformed, because of a scratch from a ghastly 6' space spider, into a hybrid half-man, half-arachnid creature. "Spider Smith," as he's come to be called, shares many of the features of the space spiders, which have six legs and were created entirely in CG by Film Factory at VTR. "Spider Smith is the unique creation," Bickerton says proudly. "Stephen Hopkins did the initial drawing that led to the design. Because he's a hybrid of the spiders and Dr. Smith, he has this unique leg arrangement of the spiders. Each of his arms and legs split into two like the spiders' legs do. He's a very tall, spindly character with a very tall, sinewy body, and his head is on the end of a 6'-long neck, almost like an elephant's trunk, which snakes around — at full stretch, he gets up to 13' in height. Like the spiders, he has a hard, crab-like

exoskeleton, and his face is made up of hard overlapping plates, like an insect. He's dark blue in tone and generally pretty horrible-looking."

In order to keep some element of Oldman recognizable in Spider Smith, Bickerton's original concept was to put the actor on a dolly wearing facial and head prosthetic makeup, then have Film Factory at VTR create the rest of the monster's body in CG. The actor had previously performed with extensive full-body prosthetics in *Bram Stoker's Dracula.* But when neither Hopkins nor Oldman liked the makeup designs, Bickerton made a tough decision: "We decided to go all CG on Spider Smith, but we still wanted to get the essence of Gary Oldman into the character."

To achieve that, Bickerton and company had to try something that had never been done before: using motion capture to accurately simulate Oldman's multi-nuanced facial expressions and lip-synch his dialogue for the confrontation scene. The equipment necessary to do the job consisted of a helmet-like device worn by the actor with a video camera suspended on a short boom, pointing at his face. "The camera uses an extremely wide-angle lens to take in the whole face at such a short distance, but it can't see past the actor's cheeks to capture the movement of the ears," Bickerton says. "Because the rig had to be light enough for an actor to wear, it uses a very small, low-resolution camera, which meant we could only put so many markers on Gary's face. After some initial tests, we realized this was no good because it didn't show any subtlety whatsoever in the facial motion. So we decided to use a variation on the eight-camera infrared motion-capture setup that is normally used to capture gross body movements over a 10'-square volume or larger. We wanted to sit Gary down in a chair and capture just his facial and head movement, a 3'-cubed volume at most.

"We wanted to get the arching of his eyebrows, the structure of the face, the full distortion of the mouth, and full lip-sync, so we put about 40 little spheres, each about 2½mm in diameter, on Gary's face," Bickerton adds. That was more markers than would normally be found on an entire motion-capture body suit. "Gary's face was just infested with markers, and he was very good about letting us do all of these things. We literally had only got the system to work the day before we used it on Gary, but it was very successful. The animators at VTR worked hard to make that motion-capture information work. They did 62 shots, which rarely required cleanup or much additional animation. We couldn't

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motion-capture Gary's eyeballs or lids, so they had to animate those at VTR. As for the rest of Spider Smith, we had Uli Meyer Animation do initial pencil tests to block out the general moves, and then VTR animated the body using Poweranimator. Everything was later enhanced on Quantel Domino workstations.

"I would stress that when you've got this many companies involved in a project as big as this, the film is the product of a lot of really creative individuals who contributed much more than I ever could alone."
— Angus Bickerton

"Afterwards, Gary said something very pertinent in regard to the idea of creating digital actors: 'You've still got a long way to go, haven't you, if you're ever going to match us?' He's right, it's very hard work to try and get the subtlety of animation to match the subtlety of performance by someone like Gary."

With so many wild effects sequences, the cinematic version of *Lost in Space* obviously didn't take much inspiration from its low-tech TV roots. "It's definitely got a different look," Bickerton affirms. The picture also boasts a quality that could only come from a broad range of talent, which likely signals the rebirth of the British effects industry. "I would stress that when you've got this many companies involved in a project as big as this, the film is the product of a lot of really creative individuals who contributed much more than I ever could alone. It's the model unit and all of these post houses who have made these shots, which help to make the film as interesting as it is." ■

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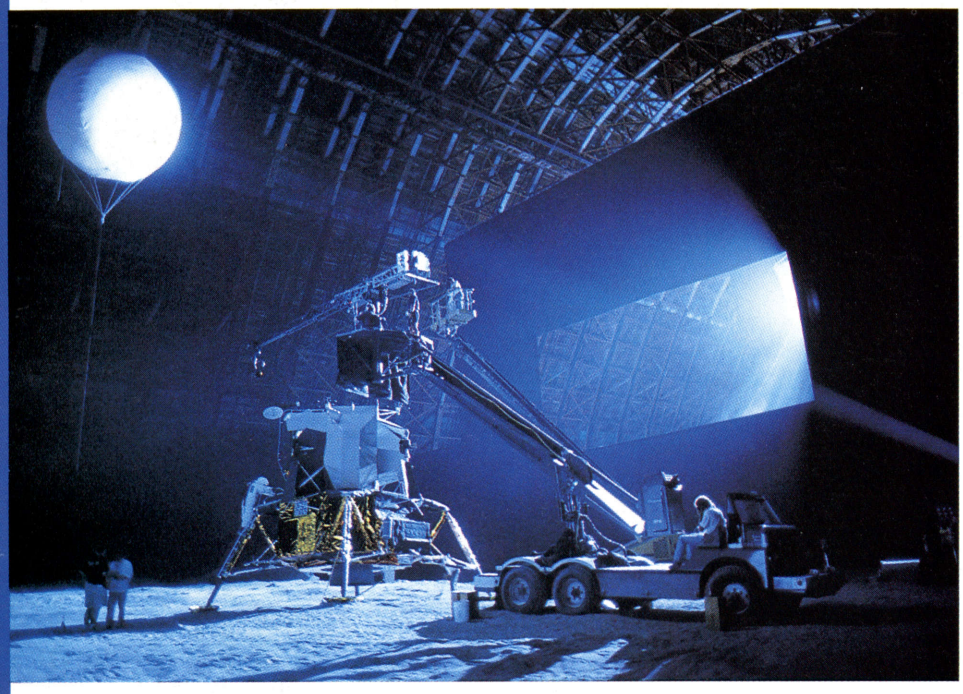


It was a scene at once fantastic and real, and for anyone who had witnessed the actual event, televised live around the world on the wondrous night of July 20, 1969, there was no mistaking the sight. Inside an enormous blimp hangar at the Tustin Marine Air Corps Station in California, HBO had re-created — with exacting verisimilitude — what astronaut Edwin "Buzz" Aldrin called the "magnificent desolation" of the lunar surface: a stark, gray landscape of rock and dust, mute and motionless and beautiful. Neil Armstrong and Aldrin were the first to set foot on the moon, alighting from their craft in spongy white spacesuits and bobbing softly as they ventured onto the unfamiliar terrain. It was fitting that on the first night of the Tustin shoot, a full moon illuminated the sky over the marine base.

(Loyal readers will recall that Aldrin, Armstrong and fellow Apollo 11 astronaut Michael Collins were made honorary ASC members for their lunar photographic work,

A Trip to the Moon

Cinematographer Gale Tattersall lends his skills to HBO's *From the Earth to the Moon*, an ambitious 12-part series which traces the history of the Apollo space missions.

by Jean Oppenheimer

Photography by Ron Batzdorff, Anthony Neste and Randy Tepper

which is extensively detailed in *AC* Oct. '69.)

Produced with the cooperation of NASA, *From the Earth to the Moon* began shooting at Florida's Cape Canaveral in February of 1997 and wrapped 10 months later in Tustin. With a budget of $65 million, the 12-part series is HBO's most ambitious and costly project to date. Interconnected to grand effect, the project's separate segments celebrate the potent combination of romance, science, imagination and technology which fueled America's Apollo space program and put men on the moon.

While a different director took the reins of each episode (with the exception of David Frankel, who helmed three of them), Gale Tattersall served as the series' sole cinematographer. The task was formidable, requiring some 6,000 setups shot on more than 100 locations over a period of 271 days. Each of the 12 one-hour segments covers a different manned Apollo mission. Although certain characters appear in more than one episode, each is a separate entity, with its own look, tone and feel. With no time off between finishing one episode and starting another, the pace proved exhausting. "Every three weeks we'd get a new director who was eager to go, while the rest of us looked like Napoleon's army retreating from Moscow," jokes Tattersall, a self-described "rocket freak" who was thrilled to be part of the project.

A still photographer before he turned to motion pictures, the British-born Tattersall began his movie career as camera operator for cinematographer Donald McAlpine, ASC on Australian director Bruce Beresford's first picture, a 1972 comedy titled *The Adventures of Barry MacKenzie.* After seven years in Australia, Tattersall returned to Britain, where he began shooting commercials.

He returned to feature films in 1984 as operator on *The Emerald Forest.* He calls that film's director of photography, Philippe Rousselot, AFC, "one of the nicest people and greatest teachers I've ever met, and one of the most generous people in terms of sharing knowledge." Tattersall graduated to lighting director in 1986 with *Comrades* and came to the United States four years later to do some additional photography on *The Addams Family.* His other credits include *Wild Orchid, The Commitments* and *Virtuosity* (see *AC* Oct. '95). At press time, Tattersall was in Toronto shooting *Pushing Tin* for director Mike Newell.

From the Earth to the Moon marks the cameraman's first foray into television, and he half-jokes that the primary reason he wanted to shoot the series was the challenge of lighting the stark lunar surface. "Unfortunately, that sequence was done at the very end of the shoot, so I had to be quite nice to get there," he deadpans. "If they had dispensed with my services before arriving on the moon, I would have been very disappointed!"

The lunar set spanned 36,000 square feet, an area 30 times larger than the average soundstage, and it had to be lit with a single source, just as the moon is illuminated solely by the sun. There is no fill light on the moon, apart from a very limited amount which bounces back from the ground or bounces off an astronaut. "We had to build a light that didn't exist," Tattersall explains brightly. "We essentially created a 250,000-watt lightbulb."

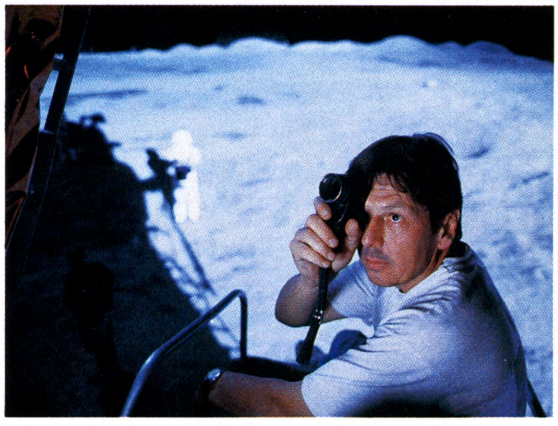
He knew that whatever the source, it had to be highly concentrated, as there is only one very long, very clearly-defined shadow on the moon. In addition, the light couldn't be too close to the set or the relative fall-off from where it first struck the set to the farthest point would be unacceptably high. In fact, there had to be no difference in the level of brightness between one side and the other. That meant keeping the light source as far back as possible — which then created the problem of needing more power. "The only way I could think of doing it was with a [6'] convex mirror," relates Tattersall. "Basically, we were using the mirror as a collector to catch a massive amount of power and then turn it all into one source and throw it out again."

To supply the lighting power, he opted for an array of 10K Xenon units. Tattersall explains, "Xenons are focused spots; their light is focused through a lens on the front of the lamp, [which makes them] really powerful. All of that power went into the mirror."

The Xenons could also be projected from a distance. Even 140 feet from the mirror, they created a beam of light only 6' in diameter. Other lamps, such as 4K Pars, are very concentrated, but couldn't be focused directly on the mirror. Only 15 10K Xenons existed in the United States, however, and Tattersall needed 21. He sought the help of Xenotech's Richard Hart, who built another six units.

Tattersall laid out his lighting plan to the series' co-executive producer, Tony To. "Tony is one of the most creative producers I have ever worked with, if not *the* most creative," says an admiring Tattersall. "He looked at me as if I was completely nuts and said, 'What's the B plan?' I said, 'Well, I'll be doing Taco Bell commercials in Tijuana.' He asked me what I meant and I replied, 'I can't think of a B plan.'" ➢

Opposite: The Apollo 11 lunar lander sits on the "moon" — actually, a set built in an enormous blimp hangar at the Tustin Marine Air Corps Station in California — while a Technocrane moves in from its special platform atop a Chapman Supernova. Director of photography Gale Tattersall (below) devised a single light source to accurately replicate the sun's harsh illumination.



Photos courtesy of HBO.

A Trip to the Moon

The "sun" source for the moon set was created using an array of 21 10K Xenons reflected into a water-cooled convex mirror. Xenotech specially built additional units to fulfill the production's unusual needs (see diagrams).

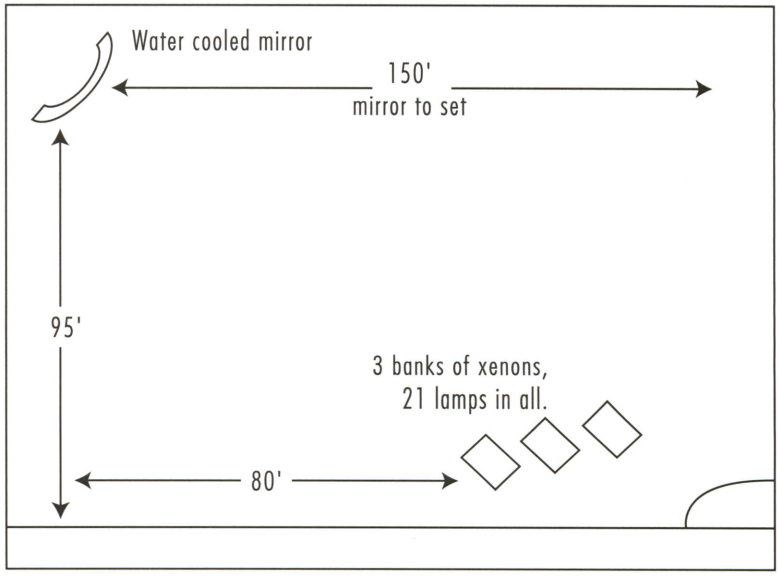
During production of the moon sequence, the Xenons burned for 12 and 13 hours a day. To help prevent a fire or explosion, all of the electronic cables feeding the lamps were put in an air-conditioned tent. This measure wasn't enough: the cables couldn't take the power, and burned out. Higher-amperage cabling was required.

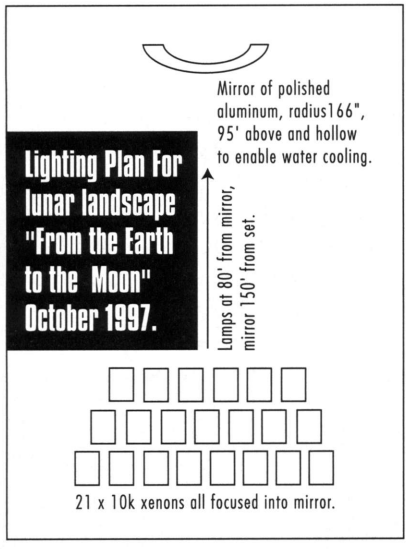
The biggest fire hazard was actually the wooden ceiling of the hangar. "We had to use a special material called Reposil that absorbs heat," comments Tattersall. "It's a modern equivalent of asbestos in a cloth form. We put it 10 feet back behind the mirror so the tiny amount of spill we got from the Xenons wouldn't be concentrated into the wooden beams. The best boy, Jimmy "Mac" McCullagh, was testing three of the Xenons. He was maybe 30 to 50 feet away, with goggles on, and his hair started smoking. And that was while working with just three of them!"

Heavy black drapes were hung between the "sun" and the lunar surface, save for a rectangular opening about 160' wide and 80' high. The drapes acted as cutters, controlling the light so it would fall just on the set and not hit the surrounding woodwork.

The mirror itself was water-cooled, built with a hollow tank behind it so water could run through and dissipate the heat. Recycling and cooling the water proved inefficient, so it ran into a drain instead.

Rather than use matte boxes when shooting on the moon, Tattersall decided to take advantage of the lens flare. "It gives you a feeling of the sun's intensity," he explains. "We also used zoom lenses quite a lot, because zooms have so many glass elements — and so many coatings on the lenses — that you get all of these lovely refractions in different colors. I didn't have quite enough





stop to use our Cooke 5:1 zoom, so we used Arriflex Variable Primes instead." The rest of Tattersall's lens package included a set of Zeiss Superspeeds, a set of standard Zeiss optics and a Cooke 10:1 zoom, as well as a wide array of snorkle lenses, borescopes and probes.

Shooting on the moonscape was further complicated by the fact that the visors on the astronauts' helmets reflected 270 degrees in every direction. "Those helmets see everything," says Tattersall. "But because they act like a fish-eye lens, the things they see are reduced to a very small size. Everything that is about 25 or 30 feet away disappears." A nearby tripod or dolly would have been reflected, but a remote head on a Technocrane provided the perfect solution.

The Technocrane is unique among cranes in that it has a telescoping arm which can retract or extend; without pushing the base anywhere, the arm can move 12 feet. The crane was placed on a special platform atop a Chapman Supernova (a more heavy-duty version of the Chapman Titan), which was parked some 30 or 40' away from the performers so it wouldn't be picked up in the astronauts' visors. "That combination gave us a reach of something like 45 or 50 feet," notes Tattersall. "As a result, we could bring the camera in close to the astronauts but have the support structure set way back, so it didn't break the horizon reflection. At other times, we could get the camera in by hiding it in the reflection of something like the lunar module, where it just blended in with the metal work. Or if the camera was against the blackness of the sky, we covered it in black cloth."

Tattersall expresses lavish praise for Technocrane operator Simon Jeyes, who sat away from the set with a video monitor and controlled the camera with remote pan and tilt wheels. The cinematographer also lauds the work of first camera assistant Mike Klimchak: "He's an extraordinary focus puller. we were often shooting at T2 or T2.5 on the moon set, and there wasn't a shot that wasn't sharp. Mike couldn't be on the set or he'd have been reflected in the helmet visors, so he was 40 feet away, judging a couple of inches." Other crew members singled out by the director of photography include key grip Tom Lowry, Steadicam operator Neal Norton, second assistant Warner Wacha, digital artist Laurent Ben Mimoun, special effects supervisor James L. Roberts, and video consultant Brenton Fletcher.

To simulate the effect which the moon's weak gravity had on the astronauts as they moved and walked, Tattersall proposed attaching large helium balloons to the actors' backpacks. The balloons had to be tall and thin so they wouldn't collide with one another when the actors tried to stand together. They wound up being 56' high and 10' in diameter, and even then they constantly threatened to push the performers apart. The wires attaching the actors to their respective balloons were later removed digitally.

Tattersall felt it was important for viewers to see the mens' faces, but astronauts rarely lift their protective

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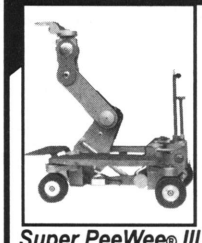
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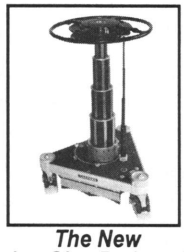
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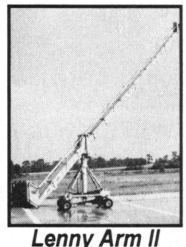
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A Trip to the Moon

helmet visors because of the intense sunlight found on the airless moon. "The only way I could justify being so close to them was to be, in effect, inside their helmets," the cinematographer explains. "To create that effect, we first made a visor without the front screen. We then took a borescope, which is basically an 18"-long black tube, about 1½" in diameter, and we screwed a tiny 35mm lens onto its end. That allowed us to be physically close enough to the actors. We used it as a floating device, usually on a dolly.

"I fought to avoid showing more than their eyes; if we wanted to see their mouths, we'd tilt down. We couldn't show their eyes and mouths in one shot because the only way of doing that would be to use such a wide-angle lens that it would make the person look distorted. And if you showed them together without the distortion, it would immediately feel fake, as though you were outside the helmet."

From the moment he came aboard the project, Tattersall knew

Right: Filming in the cramped interior of a an Apollo capsule. To simulate weightlessness, the actors were mounted to a teeter-totter device fitted with counterweights, and then "floated" by stagehands. Below: Using a periscope lens to capture an extreme angle on the lunar surface. Tattersall used an extensive array of unusual optics throughout the lengthy shoot.

that, given the massive amount of material involved and the tight schedule, compromises would be inevitable. "I think one of the important things I did was to define, with the directors, which scenes were important photographically and which ones were basically just information exchange — and to cut my cloth accordingly," he notes.

One of the most cinematic sequences in the series is a re-creation of the filming of the famous 1902 Georges Méliès short *Le Voyage Dans La Lune* (*A Trip to the Moon*) in episode 12. This final segment — which also details the Apollo 17 mission — was written by Tom Hanks, who also served as the series' executive producer, and directed by

Jonathan Mostow (who helmed last summer's action hit *Breakdown*). Essentially, the re-creation provides a behind-the-scenes look at the making of the classic French film. In the edited piece, authentic 1902 footage is intercut with the "making of" material shot by Tattersall.

Adapted from a story by Jules Verne, the Méliès film concerns a group of astronomers who travel to the moon in a large, hollow bullet fired from a cannon. A professional magician before he turned to filmmaking, Méliès filled his movie with wondrous visual effects.

An exact replica of Star Studios, the Parisian facility where Méliès worked, was built on a soundstage at Orlando's Disney-MGM Studios. "Production designer Richard Toyon did such a beautiful job," raves Tattersall. "He was able to re-create the studio almost object by object."

In the early days of the motion picture industry, when film stocks were extremely slow and powerful artificial lights had yet to be invented, sets were built with glass roofs and walls and the sun served as the primary light source. Resembling giant greenhouses, the structures were covered with large panels of silk material; by controlling louvers (similar to Venetian blinds), filmmakers could regulate the amount of light hitting the set.

The Orlando set consisted of the entire "greenhouse," not just an interior. "It was like working inside a giant silk box," enthuses director Mostow. "There was no waiting for lighting [setups] because everything is lit."

The opening shot starts high above the roof with a view of the Parisian skyline. "The camera is sitting on a crane, looking out at the skyline [which was matted in later] and then tilts down to show Méliès' studio from a great height," explains Tattersall. "As the camera moves in toward the roof, you get a view of a man working a pulley and you see a blind rising up towards you. Just as the camera gets to the glass, the blind closes, obscuring the view. You are just in whiteness.

"We then took the camera inside the building, attached it to the Steadicam operator, put him on another crane and craned down from the blind into the studio, starting the shot with the white blind just sweeping past the lens. That provided a transition of maybe six frames — which, hopefully, fools the audience into thinking it is one continuous movement through the glass roof. When the crane reached ground level, the Steadicam operator stepped off and into the scene, revealing Georges Méliès (played by French actor Tcheky Karyo) shouting at people as production assistants run around, getting ready for the *Trip to the Moon* shoot. The whole

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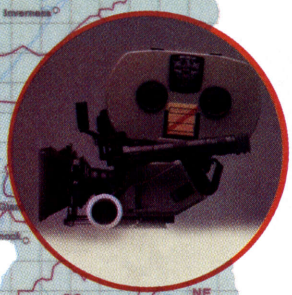

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A Trip to the Moon

The highly reflective glass domes and visors built into the astronauts' helmets played havoc with the production — necessitating various angles and techniques so that the crew could avoid making unwanted cameos. Meanwhile, Tattersall relied upon TransLites of the spacecraft's control panels in order to create the instrumentation reflections he *did* want.

thing was about a two-minute take."

To find a period camera to use in the sequence, property master John Harrington turned to History for Hire, a North Hollywood rental house that specializes in vintage props. There, he found a 1902 Pathé camera. Intrigued, first assistant Klimchak tinkered with it and got it running. Tattersall loaded it with Ilford FP4, a British-made black-and-white stock, and actually ended up shooting some of the episode with the prop camera.

The cinematographer chose Ilford because of its silvery look and beautiful grain structure. "I follow all the stills magazines and many of the most beautiful black-and-white stills I have ever seen were shot with this stock. It looks metallic and silvery and is very sharp. We pushed it a stop to give it [even] more contrast." With a laugh he adds, "The film comes in cardboard cartons and looks very homemade. I kept telling everybody that it was perforated by fisher-women on the east coast of England."

Black-and-white stock also figured prominently in episode 4, which dealt with the Apollo 8 mission. Set against the political turmoil and social upheaval which rocked America in the year 1968, the episode covers a lot of ground. The director of this installment, David Frankel (*Miami Rhapsody*), offers, "We were trying to tell the history of 1968, the story of astronaut Frank Borman and his wife Susan, and the tale of the bureaucratic machinations which led to the mission, in addition to showing a lot of the details of the flight itself."

Frankel credits co-executive producer Tony To for coming up with the idea of shooting the earth-bound scenes in black-and-white (intercut with documentary footage of the period) and the space sequences in color. "That idea provided a sharp contrast between a year of tragedy in America — with the King and Kennedy assassinations, urban riots and the Vietnam War — and the sense of glory and elation provided by the space mission," the director remarks.

Apollo 8 was the first mission to leave the gravitational pull of the earth and enter lunar orbit. Fearful that the module carrying her husband would prove incapable of returning, Susan Borman (Rita Wilson) begged NASA official Chris Kraft not to send the men into lunar orbit. That scene, which takes place on the patio of the Bormans' Houston home, was shot at a house in Florida. "It was a very dramatic scene, and we used remote heads to get a lot of craning camera movements," recalls Tattersall. "It was like creating a small stage set where we could allow the actors room to move and pace."

In the scene, Susan Borman, with her back to the house, is lit by moonlight cascading through the trees; Kraft faces her, backlit by the moon as well as the brightly glowing house, which proved to be an important light source.

The lighting for the sequence was quite complicated. To simulate moonlight, gaffer Jim Dillinger placed an 18K and a couple of 4Ks on top of a 170' Condor. The HMIs were uncorrected because the scene was being shot on the Ilford black-and-white stock. "When shooting black-and-white, you have to be even more aware of the color than when shooting color," suggests Dillinger. "You have to give it some texture and separation."

Tattersall continues the thought: "One of the aspects a director of photography and gaffer need to be constantly aware of when shooting black-and-white is that totally different colors — for example, bright red and bright blue — may appear to have terrific separation to the eye, but may photograph as identical shades of gray."

In the living room of the Borman home, electricians set up eight 4' x 4' bay lights, configured to make a large overhead box which corresponded to the rectangular shape of the room, and hung teasers along the sides. They then put a piece of bleached muslin flush against the exterior of the box and bounced blondes off of it, producing a gentle overall directional light which shone through the back door and out onto the porch. Outside, beneath the eaves of the porch, they bounced 650W redheads for additional, gentle overall fill. Dillinger recalls with a laugh, "The house was so bright, anyone walking up the street thought it was on fire."

In this episode and throughout the series, Tattersall relied heavily on bounce boards and soft reflectors, as well as Tiffen ProMist filtration on

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A Trip to the Moon

the lens. "I think it's important on television to soften the image," he muses. "Even though shot originally on film, the material ends up on an electronic, hard medium. The ProMists really help to make the look a little bit more filmic, just by taking the sharpness of the video out of it."

While the events depicted in *From the Earth to the Moon* are of nerve-racking intensity, physical action is limited, with much of the drama hopscotching between two very static locations: Mission Control in Houston — where rows of men essentially sit at desks, watching computer screens — and the interiors of the space capsules, where astronauts sit in cramped quarters staring at control panels. Lighting and camera moves proved invaluable in helping to foster a sense of activity and to enhance the dramatic tension. "People often weren't moving at all," remarks director Frankel. "Gale's photography and camerawork is really what carried the pace of the shows."

From left: Tattersall, executive producer Tom Hanks and first camera assistant Michael Klimchak pose with a vintage 1902 Pathé camera while shooting the episode which re-creates the Méliès short *Le Voyage Dans La Lune* (*A Trip to the Moon*).

An exact copy of the Mission Operations Control Room — referred to as MOCA — was built at the Disney-MGM Studios. (A scene at Mercury Mission Control, which appears in an earlier episode, was filmed inside the actual facility at the Kennedy Space Center.) The MOCA set consisted of six rows of consoles, tiered so they rise slightly one above the other. Behind them, separated by a glass wall, was the VIP observation room. At the front of the main room were three large projection screens— one 12' x 16' screen, and two 10' x 12' units — which depicted the path of the command module, as well as live video feeds from inside the capsule.

The real MOCA is lit by overhead fluorescents, and for routine scenes Tattersall followed suit, using 4' Kino Flo fixtures. However, when a flight was experiencing problems and the crew's lives were at risk, he would bring down the level of the fluorescents and enhance the lights coming from individual computer screens and desk lamps. "I had a rule of thumb: if there was a lot of tension, I made the lighting more dramatic, coming more from the consoles and monitors, so you'd feel an intensity," he explains. "I also tended to go a bit cooler in those scenes, using ¼ or ½ CTB to raise the color temperature."

The desks and consoles were stacked with manuals and books which could be used to hide massive numbers of Mini Flos. Chinese lanterns were also used extensively; hidden on the floor, they helped to separate a person's back from the dark green metal of the console behind him, or to provide a glow in a character's eyes. For the cooler, more dramatic scenes, the Chinese lanterns were wrapped in ½CTB.

Special dimmable Kino Flos were used in the overhead lights. At times, Tattersall added NDs to knock them back even more, "when we wanted a very low level of ambient light — four stops under mid-exposure, that sort of thing," he explains. "I also used something called Rosco Scrim; it's an unusual fabric which cuts light back about a stop-and-a-half. You know how fluorescents often have those egg crates? We just laid a sheet of this fabric on top of those."

In addition to the fluorescents, Par lamps were projected through square holes in the ceiling. Resembling practical fixtures, they were used more for effect than illumination, especially since Tattersall pumped smoke into almost every scene. "Everybody hated me on the set because I used about five million gallons of smoke oil," he declares. "That technique separates planes of focus and helps create a feeling of layers, which I think is terribly important on television because it's a fairly small screen. It helps to enhance separation and depth, particularly when you're shooting in black-and-white."

To compensate for the stationary actors — who most often remained glued to their seats in MOCA — Tattersall kept the camera moving. He would often mount a camera equipped with a snorkle lens from a crane positioned behind the consoles, and then track down the rows of hands and faces.

The most vexing location for the camera crew turned out to be the space capsule; shooting within it was akin to working in a phone booth. Like their real-life counterparts, the movie astronauts sat shoulder-to-shoulder, with 18" between their bodies and the control panels and perhaps two feet between them and the back wall of the capsule. At times, the camera jockeyed for position alongside the actors; otherwise, it sat on a platform which circled the outside of the lunar module. Panels could be removed from the sides of the capsule to make filming easier, but it was never *that* easy, since everything was connected electronically. "It wasn't just a matter of ripping a wall off," says Tattersall. "You had to disconnect all of the circuitry as well."

Tattersall — along with Dillinger, who shot second-unit footage inside the capsule — tried to leave the lens inside the module at all times. "We never wanted to shoot from outside the capsule because the perspective would be wrong," remarks Tattersall. "It was important to convey the proximity and claustro-

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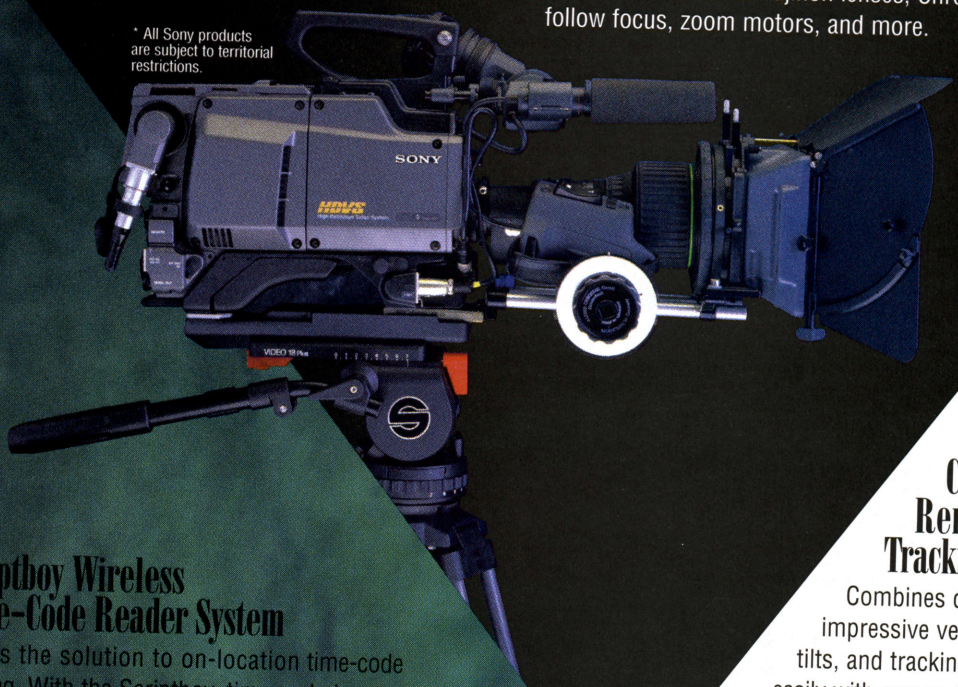

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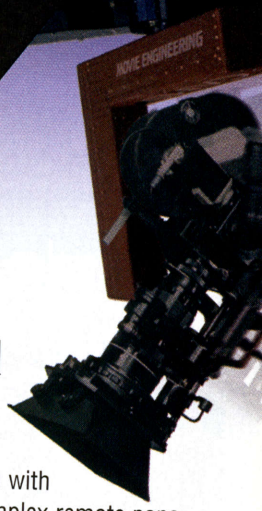

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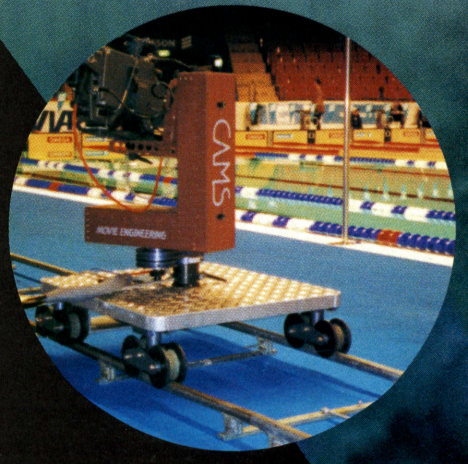

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phobia. We went from very wide angles, like 14mm, right through to 85mm for close-ups and even 135mm. Because the capsule was so small, you could never see anyone from head to foot, but we did have wide shots.

"We referenced the movie *Apollo 13* [see *AC* June '95] an awful lot," he continues. "It became our yardstick in terms of what we wanted to achieve. In Ron Howard's movie [photographed by Dean Cundey, ASC], the camera was always moving and floating, which gave a nice feeling of weightlessness — so we did that, too. We never had a static camera; there was always just a bit of drift to it. The camera would either be mounted on a Steadicam rig or on something like a Weaver/Steadman with a mini jib arm." Equipped with a three-axis head, the camera could rotate, as well as tilt up and down and pan left and right.

For *Apollo 13*, scenes in which the astronauts were weightless and floating around the cabin were shot in the aptly nicknamed "Vomit Comet," a NASA-converted Boeing 707 which climbs to 40,000 feet and then goes into a parabolic dive, resulting in a minute and a half of real weightlessness. The *Apollo 13* capsule was built inside the jet, a luxury not extended to the makers of *From the Earth to the Moon*. Instead, the production relied upon small teeter-totters which came up through the module's floor. Built off the ground, the module was suspended within a huge iron framework. With metal bars welded to both the module and the iron cage, the unit resembled a giant spider's web. The actors stood or sat on the teeter-totters and were "floated." The mechanisms were counterweighted for the actor's weight so any crew member could easily move them up or down with one hand.

Perhaps inspired by *2001: A Space Odyssey*, Tattersall wanted to take advantage of the reflections of

the control panels in the astronauts' visors, but the panels weren't bright enough to be picked up in the helmets. He solved this dilemma by asking the unit still photographer to photograph the panels with a large-format camera; TransLites were then made from the photographs. "If I was doing a close-up [of an astronaut], I'd put the TransLite next to the camera and hammer a really powerful light through it," he explains. "Basically, we created a photo of the console that was 100 times brighter than the real thing, so it would reflect in the visors."

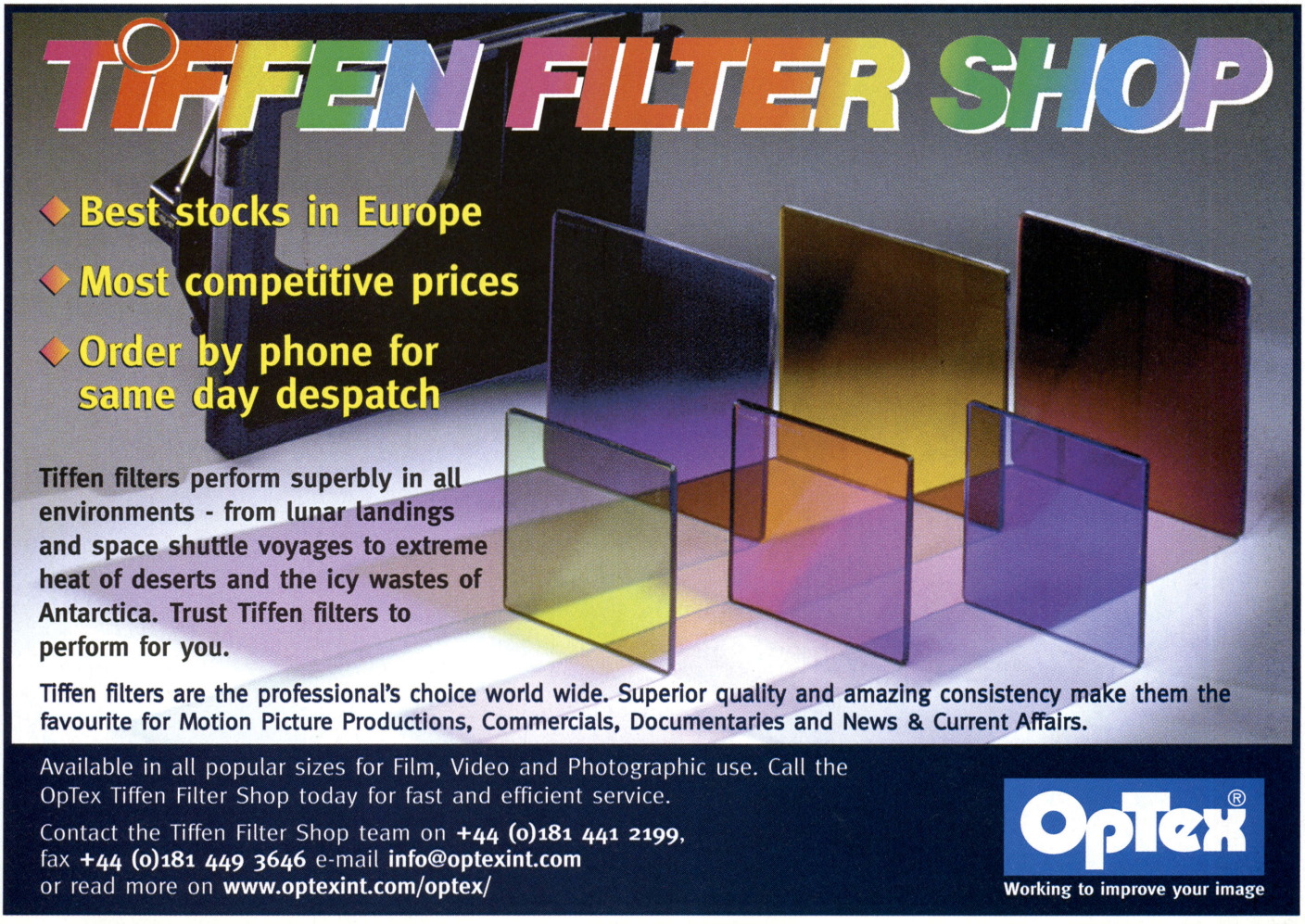
One of the most enjoyable episodes for Tattersall was *We Have Cleared the Tower*, which recounts the launch of Apollo 7, the first manned flight following the Apollo 1 tragedy (in which three astronauts died in a pre-launch fire). Directed by Lili Fini Zanuck, the episode is told through the eyes of a documentary film crew which is chronicling the days leading up to the blast-off.

Zanuck chose the episode because it allowed her to shoot in multiple formats, something she had long wanted to do. The filmmakers used both color and black-and-white 16mm to simulate the documentary crew's footage; 35mm within the "objective" A-camera; and home-movie-style Super 8 footage supposedly shot by a character in the film. NASA also allowed Zanuck to use its 70mm footage of the 1967 launch of the real Apollo 7, as well as 16mm black-and-white film taken by NASA security cameras.

Zanuck says, "I wanted the documentary crew cameraman to be a real cameraman, not an actor, since I was going to be shooting the documentary footage live." Thus, Brazilian cinematographer Marcelo Durst was "cast" as the documentary cameraman. "We weren't going to cut and then do another setup," the director adds. "We blocked for both the 16mm and 35mm cameras, and both would start rolling on the 'action' cue. The 35mm wasn't supposed to be doing fancy things, because it was the objective camera. I depended entirely upon the 16mm camera to add the spice."

Zanuck wanted the footage to have an authentic Sixties look, so Tattersall loaded Ektachrome film in the period Eclair NPR that Durst used. A reversal stock, the Ektachrome produces a grainy look with saturated colors. "The 1960s were the most hideous period in history in terms of clothes and wallpaper and colors," laments Tattersall. A laughing Zanuck agrees: "The 16mm footage was really tacky, and when we went to our online session we pushed the envelope."

Not surprisingly, each director wanted to give their episode a distinctive look, and frequently referenced other films by way of example. For the segment on the Apollo 1



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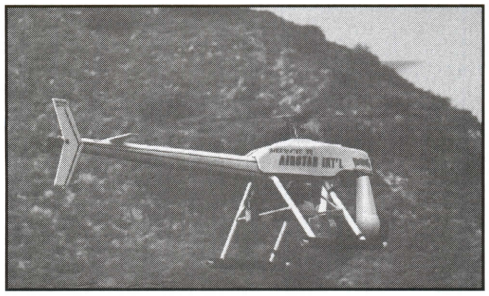

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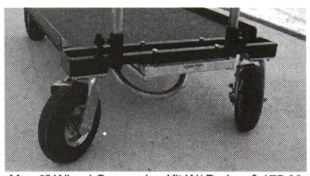

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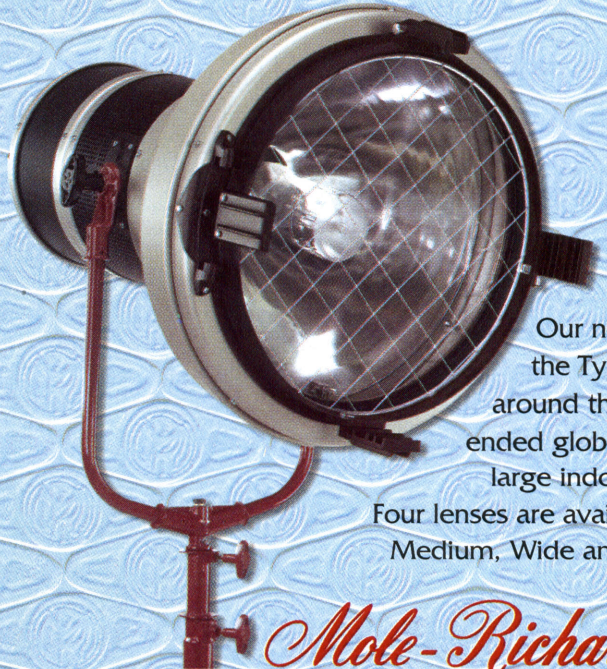

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A Trip to the Moon

tragedy, director Frankel asked his cameraman to think about the overhead lighting Gordon Willis, ASC designed for *The Godfather*. "It allowed people's eyes to go dark, and the shadows to be very deep," remarks Frankel. "I also liked that the palette was simple and subdued, with red and brown tones. I wanted [those same melancholy] tones, which meant eliminating the cooler hues, the blues."

To achieve a *Godfather*-type look, Tattersall used overhead soft boxes. He tried to maintain dark wall textures — which proved difficult given the 1960s milieu — and kept the light soft and falling down.

Episode 8, *We Interrupt This Program*, tells the story of Apollo 13 through the eyes of the press corps. Here, Frankel wanted the warm, evocative period feeling of *Mississippi Burning* (photographed by Peter Biziou, BSC), with its saturated tones and blown-out light. "We shot in lots of shady streets, outside astronauts' homes," says Tattersall. "We'd choose areas where we were in shade so the streets beyond were bathed in sunlight, and I used Tiffen Superfrost and ProMist filters to make it bleed and overexpose."

With few exceptions, nearly everything in the series was shot in 35mm on Eastman Kodak EXR 5293 or Vision 500T 5279 stocks. The camera package consisted of two Arri 435s and two 535Bs (one of which doubled as the Steadicam unit). "Arriflex cameras are like Mercedes cars," enthuses Tattersall. "They tend to go on forever. Our schedule was brutal and we were shooting in the heat and humidity of Florida, where it got up to 115°F. We shot over 1.3 million feet of film, but [the minimal] problems we had with the cameras — like scratches — could have fit on a 400-foot reel."

The versatile 435 cameras proved especially handy on the moon set in Tustin; since the astronauts' helmets hid any lip move-

ments it wasn't necessary to use a silent camera. "The 435s have a real high-speed capability," notes Tattersall. "They can run from 1 fps to 150 fps. With the 435ES model, you can even change the speed of the film in the middle of a shot; the camera has an electronic shutter that compensates the exposure."

Nearly the entire camera package for *From the Earth to the Moon* was supplied by The Video and Film Company (VFC) in London, which Tattersall describes as "one of the most innovative and creative companies in the business. They are constantly researching and developing new ideas for lenses and techniques that help me bring to the table images that have never been seen before. CEO Mike Pia and I grew up in the industry together, and I can call him at four in the morning if I have a problem."

Tattersall had always considered himself a feature film cameraman, but *From the Earth to the Moon* opened his eyes to what can be accomplished in the television medium. "You could never tell a story like this in feature form, because it is so intensely complicated and lengthy; you could never get all of the information in," he asserts.

"I believe that the standards of photography in television are changing," he continues. "I was hired to give this project a big-screen, feature film look because, like myself, Tom Hanks and Tony To share the vision that within a few years we will probably be watching television on large pulldown screens with laser projectors at full film resolution."

Tattersall wanted to ensure a long shelf life for *From the Earth to the Moon.* Therefore, while he composed his frame for the 1.33:1 format, he kept the edges clean for 16:9 HDTV. "We had to create a new ground glass with optimum frame markings," he remarks. "It was designed and built at The Video and Film Company. We called the new format 'Moon Vision.'"

Tattersall says that he personally found the most emotional segment of the series to be the re-creation of *Le Voyage Dans La Lune.* He was so entranced with the sequence, which combined his love of space and movies, that he asked if he could play Méliès' cameraman in the episode (Tom Hanks also has a cameo, playing Méliès' first assistant director). "There is something so wonderful about being able to play the part of Georges Méliès' cameraman," says Tattersall. "Here I am, a cinematographer on the eve of the millennium, making a film about men traveling to the moon, with all of the inherent technology which that involves. And I'm playing the part of a cameraman from 100 years ago, at the birth of *our* industry. It felt like I was describing a full circle." ■

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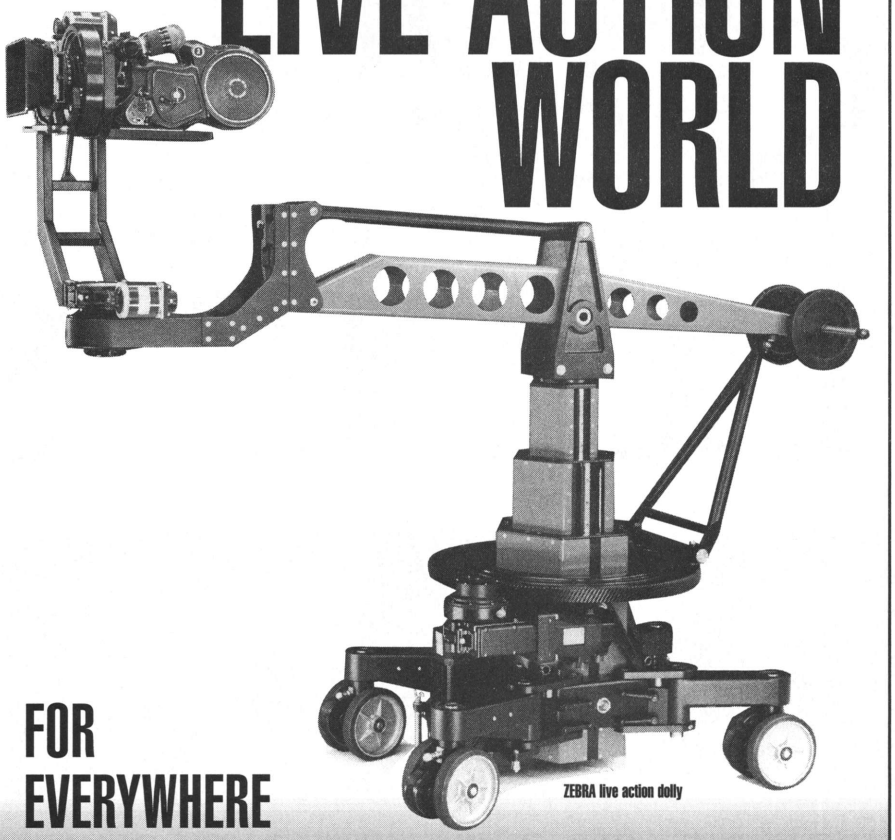

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Lone Star Looters

Cinematographer Peter James, ASC, ACS, CSC re-creates the Roaring Twenties, Texas-style, in director Richard Linklater's *The Newton Boys.*

by Chris Pizzello

Photography by Deana Newcomb

In a cinematic era in which the average Hollywood blockbuster's body count is as exorbitant as its budget, a film about bank robbers who ply their trade without killing a single person seems more credible as a fanciful comedy than a fact-based drama.

But one should never underestimate the rich reservoir of American history. Richard Linklater's new film, *The Newton Boys,* chronicles the legendary exploits of four gentlemanly brothers from Uvalde, Texas, who joined together in the 1920s to become America's most successful stickup men. In depicting the relative innocence of the Newtons and their era, the film offers a subtle commentary on the nihilism and cynicism of the modern age.

The Newton Boys commences in the wake of World War I, with the United States welcoming in the sweeping changes of the Roaring Twenties. New towns, shops, banks and schools litter the frontier, but the new prosperity means that the nation's fiercely independent settlers soon find themselves dwarfed by the growing behemoth of Corporate America. In their home state of Texas, brothers Willis (Matthew McConaughey), Jess (Ethan Hawke), Dock (Vincent D'Onofrio) and Joe Newton (Skeet Ulrich) are barely able to eke out a living as farmers and horsemen. Willis, the most enterprising of the brothers, has tried his hand at big business, only to be squeezed out by the country's most powerful oil barons. Believing that the financial institutions of the day are run by crooks, the Newtons resolve to claim their share of the wealth they see all around them.

Photos courtesy of 20th Century Fox and Peter James.

The real Newtons' criminal but non-violent exploits crossed into several states and captured the imagination of the American public. Their *piece de resistance* — the $3 million dollar heist of a Federal mail train — was the biggest haul ever for such a robbery, but also sowed the seeds of their downfall.

The Austin-based Linklater's previous filmic forays into the Lone Star landscape have included an innovative real-time look at the college-educated yet job-weary youth generation of the 1990s (*Slacker*); 24 hours in the life of dope-addled high-school seniors clinging to the waning days of their adolescence (*Dazed and Confused*); and a serio-comic story about twentysomething townies who find sanctuary from the outside world at their neighborhood convenience store (*SubUrbia,* see *AC* March '97).

Linklater knew that the epic sweep of the Newtons' story would present him with an opportunity to graduate to a more ambitious realm of filmmaking, while still allowing him to stay true to his Texas roots. "I first read about the Newtons in a *Smithsonian* article written by Claude Stanush, who became my co-writer on the film," he explains. "I thought, 'That's the story I've wanted to make my whole life.' In addition to being a Texas story, *The Newton Boys* was a cross between two genres I've always loved — the gangster film and the Western. The story also took place in the 1920s, a very interesting period of time in America. A lot of people have said to me, 'This is such a departure for you, it sounds so different from your other films.' But for me, I feel the same way about this story that Scorsese probably did about the book *Wiseguy,* which became *GoodFellas.* This is my story, you know?"

The film's exacting period milieu was simulated at 81 locations around Texas in only 57 shooting days; the combination of an ambitious narrative and a short schedule put considerably more pressure on Linklater, who was accustomed to miniscule budgets. Ironically, the director feels that his indie pedigree helped him make the jump to a still-modest $27 million budget. "I think it was really helpful for me to have done $3 and $6 million dollar movies," he attests. "We just didn't have time to do *The Newton Boys* the way we could have, with a 70-day schedule and a $60 million budget. This movie actually involved the biggest discrepancy I've yet experienced between the money we had and what we needed in order to do it completely right. When I did previous films at $3 million, I felt that was about right. This time I felt underbudgeted — [making the film] was a struggle. On my last movie, *SubUrbia,* we had basically one location! It's a real testament to [production designer] Catherine Hardwicke, who designed two movies which couldn't be any more different."

Opposite, top: Linklater (left) and James confer on location. Opposite, bottom: The Newtons savor a successful heist. This page: Modern technology helped the filmmakers make the trip back in time. Here, an overhead lighting grid augments an array of chandeliers as a remote arm prowls the Agassi Ballroom of the old Texas Women's League building in downtown Austin.

Linklater's cinematographer on his previous films was Lee Daniel, his longtime friend and a fellow co-founder of the Austin Film Society. This time, Linklater decided to work with Australian-born cinematographer Peter James, ASC, ACS, CSC, whose long list of credits includes a number of successful collaborations with Australian director Bruce Beresford: *Driving Miss Daisy* (1991), *Mister Johnson* (1991), *Black Robe* (1992), *Silent Fall* (1994) and *Last Dance* (1996). James' other credits include *My Life* (1993), *The Thing Called Love* (1993) and *Diabolique* (1996, see *AC* April '96).

"I needed Peter's experience for this film," Linklater explains. "This was such a rigorous shoot, with

Lone Star Looters

Working stealthily amid a moody nighttime ambience provided by James, the "gentleman robbers" waylay a railroad man.

so many locations. I was working for the first time in anamorphic, which I knew Peter had done before. His work with Beresford speaks for itself, but even in some of the other films he's photographed, he has demonstrated a really soft touch with lighting that I felt would suit the period of this film particularly well. From the first time I talked to Peter, I could tell we were in the same groove. He's a thorough artist on all fronts. During the production, we had simulated snow for a winter robbery scene — the Newtons did a lot of robberies in the winter when it was cold — and the snow was supposed to be starting to melt. I remember seeing Peter walking around the set with spray cans, spraying all of the fake snow to make it look as if it was melting. He has that kind of eye for detail."

For his part, James welcomed both the opportunity to document a colorful era and to collaborate with a young, unconventional talent like Linklater. "There seems to be a strange attitude in America that anything 'period' is considered corny or old-fashioned," the cinematographer observes. "I think that's a shame, because U.S. history is so fascinating. I've only encountered this resentment of history in America — young people seem to think, 'Oh, it's history, yuck.' Rick wanted to make a film that felt contemporary, rather than doing a stodgy period film. The characters don't use modern language, but their sensibilities are contemporary. He wanted a modern audience to be able to relate to these people. Rick is a very uncommercial guy in some ways, but he also knows what the audience wants."

"A lot of period films fall into a certain self-importance," Linklater points out. "[In many of those films,] everything is a big deal. In this film, the Newtons are doing the largest train robbery in U.S. history, yet to them it's just another job! Say you're fighting in a big battle: you're thinking about how to survive, how to get what you want, and what you're going to do later that evening! That was the attitude we were going for, and Peter was totally in on that same have-fun-with-it vibe."

As such, Linklater and James didn't screen many Western or gangster films before production, preferring to put their own stylistic stamp on these genres. "I didn't have anything in the script that said, 'This is the Leone shot!' Linklater laughs. "We did watch *Jules and Jim* [1961], which doesn't jump out at you as a Western, a gangster film, or even a crime film. But it was a period piece, set at the turn of the century. I liked its playful, contemporary attitude. It had a lighthearted feel that I was striving to capture on *The Newton Boys*. There aren't too many shots in the movie where the audience might think, 'Oh, this is right out of a certain Western.' We do have shots that no one film can put a claim on, like the traditional, guys-riding-in-on-horseback scene, shot with a long lens. But then they ride off, and quickly enough they're being chased by a car! That's the rub."

James' insistence on conducting extensive camera tests also came in particularly handy on a film with countless different locations and wardrobes. "I test everything — clothes, colors, makeup, lipsticks, hairstyles, even paint on a wall in the background," the cinematographer attests. "You've got a camera running anyway for the makeup and wardrobe tests, so why not put something else in the frame as well? The difficult aspect of this film was that in the Twenties, there were a lot of clothes with plaid, herringbone and houndstooth patterns, which all strobe when you put them on television. Even though we shot in anamorphic, the film is still going to be on television somewhere down the line. Almost all of the wardrobe in the film was patterned, but before we got too far, we tested all of the clothes with a video camera. We rejected some outfits immediately because we knew they would be far too distracting in television close-ups. We also used brown or blue dye to knock down the contrast on some of the costumes. When the contrast is too great, you get strobing.

"The women in the film were generally very pale, but the men were a little trickier because they always wore hats," he adds. "In the Twenties, just about everybody had a hat on. It worked out well because the characters played by Ethan [Hawke] and Skeet [Ulrich] are always wearing hats when they bring in the horses. Their necks and faces are very brown, but when they take their hats off, they have these white foreheads, which is very realistic! To get under

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Lone Star Looters

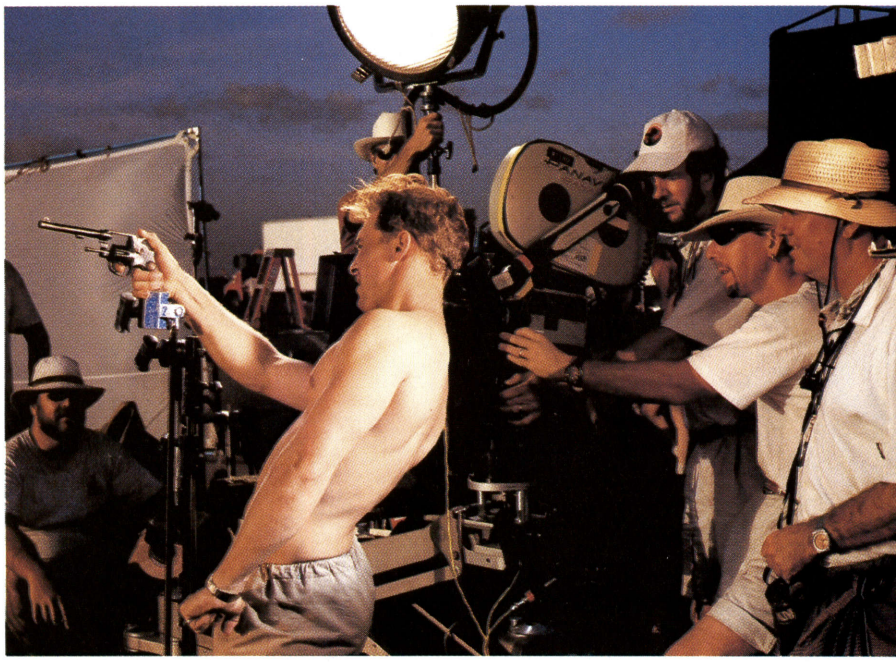
James (far right) and the camera crew line up their sights as actor Matthew McConaughey takes aim.

the brims of the hats, we used a lot of bounce light coming off the ground. Fortunately, we got a lot of shadow detail with the Kodak films we were using [EXR 5293 for day scenes and Vision 500T 5279 for the movie's night photography], so I could overexpose slightly and expose more for the shadows."

James admits that it took him a while to get accustomed to Linklater's trademark fondness for wide-angle lenses. "When we first started lining up shots, I found that we would be right on top of the actors," James recalls. "I'd be thinking, 'My God, I'm going to need to shoot with a 40mm for that kind of coverage.' Sometimes I disagreed with the really wide lenses because you tend to bend everything too much and distort the actors, so we would pull [the camera] back a bit. It took me a little while to catch on that he really did want to go that wide — Rick really likes to be right up there amongst the actors."

Linklater occasionally opted to let a scene play out virtually its entire length in the master shot, a strategy which tested James' ability to hide his lights. For one scene, production designer Hardwicke dressed up an old Masonic Temple hall in San Antonio as a King Louis XIV-style suite, with an oversized canopy bed, period desks and plenty of roses and flowers. The large room had four windows on one wall directly facing the camera lens. "I had almost nowhere to light from," James describes. "It was a shot that started on a close-up of Dwight Yoakam's character, Brent Glasscock, and pulled back to reveal that everyone is in the room except Louise, Julianna Margulies' character. When she comes in from shopping, the camera follows her around and we see the whole room. I thought, 'This is a nightmare.' The whole scene was looking toward the four windows, and I had Condors with 12Ks pointing through from outside. We put full 85 gel on the windows, but I still needed some lights inside so that we could see the actors' faces.

"We couldn't anchor anything to the walls because it was a historic building, so we rigged up pipes that went behind the window curtains and just touched the curtain rails. We made the whole rig as lightweight as possible. It went very high up, and enabled us to hang four 2K zip lights from each window. Because the backlight coming through the windows was still very intense, we made a sunshade out of foamcore and black paper tape that went over the camera and kept the light out of the lens. The sunshade went right to the top of the frame, but it was the only way we could cut the backlights, which were almost in the shot."



Linklater explains that the wider lens perspective and long, patient takes he favors plays into his strategy of seducing the audience into the reality of a scene. "If there is an effect in a scene, such as a window blowing out, I hate to just cut to the effect," he explains. "There's a scene where the Newtons are robbing a train, and the camera dollies with Willis Newton as he walks up with a gun, pulls it out of his pocket, looks up, makes sure he's got the right car and then shoots out the window, all in one take. That reads real, rather than cutting to a close-up of the window being blown out. The more you can do that and keep the pace of the scene going, the better it rates on the 'realism meter.'"

Similarly, Linklater and James agreed that a naturalistic lighting style would lend credibility to their film depiction of historical figures. "I generally light fairly naturalistically anyway," James points out. "Rick obviously wanted that look, or he wouldn't have hired me. But during the part of the movie in which the Newtons are in their heyday, I did use some black ProMist filtration, which lent a creamy, rich quality to those scenes. We slowly increased the amount of diffusion from ⅛ and ¼ to a heavier degree, as much as a 1, depending on the light and contrast of the scene. At the beginning of the film, when the Newtons are poor, and at the end of the film, when their luck has run out, I put less diffusion on the camera. The film moves into a rich-looking style of lighting, and then back to a darker style.

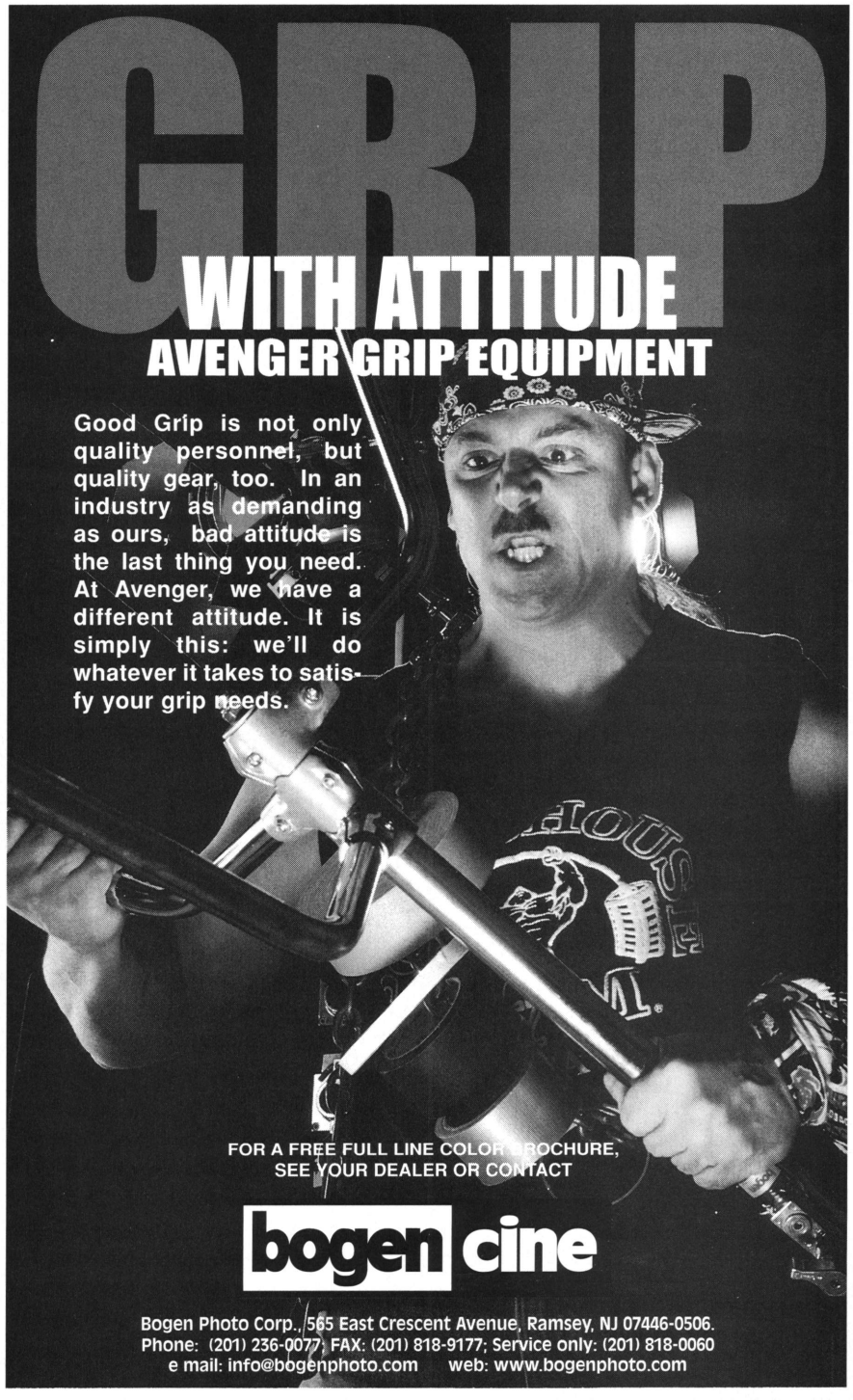
Additionally, I used some black nets, particularly on close-ups, as well as some smoke for atmosphere."

The enemy of any location shoot as harried as *The Newton Boys* is unpredictable weather and light conditions. When things got hairy, James relied on his improvisational skills. One crucial daylight robbery scene was to be filmed over just two days in downtown San Antonio (standing in for Toronto, the site of the actual robbery), but the shifting sun patterns through the skyscrapers created a continuity nightmare. "It seemed ironic that we were shooting in San Antonio for Toronto, because most of the world shoots in Toronto for every other place in the world," James comments with a laugh. "There was a problem with the sun coming over, hitting the street at about 10 a.m., and staying there until about two or three p.m. After lunch there would be a non-matching street.

"There was no way we could get away with the sun just coming up and going away again, so we decided to silk the entire street. The key grip, Serrell Shinnick, connected the silk between facing buildings seven stories up. We were lucky: there was an empty floor on one building, and on the other side was the roof. On the vacant floor, there were beams behind the old columns in the building that took the weight of the wires. Anchor floats were put on the top of the other building, and we flew out two 60' by 60' silks, which made it 120' by 60'. We could just pull it in and out like a curtain if it got too windy. It was easily the biggest silk I've ever worked with!

"For the rest of the sequence, I just used fill light — a bit of 12' by 12' bounce, or sometimes a 12K through a 4' by 4' grid cloth — because the scene was meant to be overcast. We used hoses to wet down the street, which made it look different than the Newtons' Texas robberies. We also filmed some scenes in which the Newtons are chased down an alley. There was a bad weather forecast, and I didn't want to get one sunny day and one wet day, so we covered ourselves by just wetting down the entire street for both days."

Four days of painstaking prelighting and set decoration were required for a scene in the Agassi Ballroom of the old Texas Women's League building in downtown Austin. "Again, there was nowhere to light from, so we basically built a studio inside the ballroom," James explains. "The art department built all of the columns, which gave me a chance to install a lighting rig under the ceiling, from which we hung about 70 or more Par cans. The 'studio' also enabled the crew to suspend chandeliers from the rig, which we used for backlight. The shot starts in



Lone Star Looters

A large overhead silk helps to diffuse the sun as the filmmakers plot out a period street scene on location in San Antonio (which doubled for Toronto).

a close-up of a singer and pulls back to reveal a wide shot of the whole ballroom. With a crane on a track, we were able to back the weight bucket of the crane out the door of the hall and down the staircase. We used every inch of the space."

The ever-meticulous Newton brothers planned their robberies almost scientifically, choosing locations, weather conditions, seasons and times of the day when there would be the least possible number of innocent bystanders. They preferred windy nights when the moon was dark, assessing that the combination would keep most citizens inside their homes, out of the cold. Typically, a frosty winter night was the setting for one of the brothers' most daring heists, which involved the simultaneous detonation of two bank safes on opposite sides of a Texas town square.

When the production team arrived in Bartlett, Texas, to plan the scene, Hardwicke took away all the awnings that wouldn't match 1920s architecture, and also had the white buildings, one of which was a present-day bank, painted brown for historical accuracy. "Lighting big scenes like that are really tricky, because you can only do it once and it's taken the production weeks to get these two banks ready to 'blow up,'" James says. "You're dealing with explosions at night, so you have to be careful that the flash isn't too bright, because it can burn out. We had 24 windows in one bank that had to blow up, as well as stucco sections of the roof. The structure itself couldn't be damaged because it was a historic, classic building. The original windows were removed and replaced with fake window frames with sign writing on them that said 'Bank.'

"Around the banks we had four Condors with 12Ks and 4Ks lighting the sides of the buildings. On top of the roofs on the corner opposite the bank, we also bounced light off of 12' by 12's for the fill. Since the scene was meant to look like a winter night with moonlight, I used ½ CTO and ¼ magenta on all of the HMIs. There were about 40 existing streetlights there as well, and we increased their wattage by putting 300-watt bulbs in them. We had to partially mask the six or seven bulbs near the camera with tiny blackwrap 'donuts,' because they were so bright that they would flare out on the lens. They wouldn't block the bulb totally, but they would take away the curse of the hot spot."

Ironically, the scene's pyrotechnics temporarily took a backseat to the very real whims of Mother Nature when a lethal tornado ripped through a town only seven miles from Bartlett, completely demolishing entire neighborhoods. "We donated the town a generator and a light that they could use at the morgue," Linklater recalls. "We happened to be shooting inside a bank vault when that was going on, and when we were scheduled to go outside, it quit raining. We were dodging tornadoes, but amazingly we didn't lose any time due to weather."

The Newtons' run of good fortune finally hit a snag on their most

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Adding Period Feel to *The Newton Boys*

Helping director Richard Linklater and cinematographer Peter James flesh out their drama about poor sharecroppers-turned-train-robbers in 1920s Chicago were the wizards at Matte World Digital, who have previously restored modern-day Las Vegas to all its 1970s glory for Martin Scorsese's *Casino* (see *AC* Nov. 1995) and established a faux airbase for *Broken Arrow* (*AC* April '96). Artists Chris Evans and Brett Northcutt supplied a trio of matte shots to *The Newton Boys* that added some period flash and scope to the modestly-budgeted Western extravaganza. "We really enjoy working on period pieces because they rely on the classical use of matte paintings to re-create locations that don't exist anymore," says company co-founder Craig Barron.

But Barron and company got more than they bargained for when they took on *The Newton Boys*. "Most often with period films, the director wants the shot in question to look like the place and the time, but they're not into specific buildings and streets," says matte artist Chris Evans. "On this project, though, after we took a traditional approach to the design of our three shots, Catherine Hardwick, the production designer, felt that she really wanted to see specific buildings. In this case, more than many others, we've been very historically accurate."

Adds Barron, "This film is based on a true story, so it was fun to re-create historical buildings based on research. Catherine had a lot of great books in her collection, which she graciously loaned to us. Plus, we were able to find some other material as well from Chicago's Historical Society."

The simplest of the three shots is a daytime exterior in which the Newton gang scouts for a potential bank to rob. After the plate was shot on an existing street in San Antonio, Texas (lined with period buildings), it was up to Matte World's artists to remove some modern-day eyesores to convince audiences that the Newton boys were really in 1920s Toronto, Canada. "On location, there are always things that aren't period," says Barron. "In this case, there were parking garages, so Brett Northcutt replaced them with other 1920s buildings, based on records of Toronto's banking district. This was a static shot, fairly straightforward, but it's the type of thing becomes a problem on location because there's generally something right in the center of the frame that they can't dress or get rid of."

The Matte World artists got very specific for a shot of the Newton gang pulling up alongside a speakeasy at night with the Chicago skyline — such as it was in 1924 — looming in the background. "That's an example of where we got down to exact dates," Barron says. "We originally designed that shot with three skyscrapers, but we ended up removing one because it didn't exist in 1924. One of the problems with depicting Chicago at that time is that the only tall structures were the Wriggley building and the Chicago Tribune tower. I know Chris Evans struggled over this painting quite a bit; we originally wanted to fill out the skyline a bit more so those two buildings didn't look quite so alone, but that wasn't accurate. The real skyline had a very uneven feel with those two large buildings fairly close to each other on either side of the street, and not much else around them. Because it was a night shot, we felt it would be better to make the buildings look pretty, so they're actually lit a bit more theatrically. At that time, they would have been dark at night, but we decided that if our filmmakers could really go there in a time machine, the cinematographer would light the buildings so you could see them."

While the street was supposed to be South Michigan Avenue in Chicago, it too was photographed in Austin, where Linklater's production company is based. Cinematographer Peter James had devised a cool blue moonlit look for the scene, a lighting design which Evans wanted to emulate in his digital matte painting. It wasn't easy. "All we used in the original plate was a period building on the left, which became the speakeasy, and this little El train set — just some girders and a stairway that they built in the foreground," Evans explains. "It was my job to replace everything else. I actually added the street itself and a number of parked cars across from the speakeasy, so I was essentially lighting the rest of the shot, but I had difficulty working within the context of night, which Hollywood convention says is generally lit blue. The problem was, at that time, the street lamps were gas lamps, so in reality, the street would have had an amber golden orange color. So while I had to keep the general ambiance cool and blue to match Peter's photography, I tried to maintain that golden quality around the lights and the pools of light they cast on the street and the lights in the windows."

Matte World's artists used Amazon Paint, Photoshop and Liberty 64 to create their scenic renderings, and the results were composited with the live-action plates using Alias Wavefront Composer. In this case, both Evans and Northcutt scanned photographs of period buildings into their workstations, then use their digital tools to expand on them and make them work in the context of the background plate. But according to Evans, it's making the proper lighting decisions that elevates matte painting, in the digital age, far beyond simple cutting and pasting: "In any matte shot, there are probably thousands of tiny lighting

decisions — how dark something should be, how green or blue or red. In this speakeasy shot, there's a big hotel halfway down the street with a painted sign on the side listing the offices in that building. I used Adobe's type tool to create the lettering, but to place that sign onto the building, I had to use the lighting curve tool in Photoshop to get the white color of the sign to blend with that strange mixture of blue ambient light from the original photography and golden bottom lighting from the street lamps, to get exactly the right darkness and contrast."

To further bring the speakeasy shot to life, 3-D artist Morgan Trotter

The Newtons arrive at a speakeasy in Twenties Chicago, before and after some Matte World Digital magic.

added a CG El train replete with passengers traveling from left to right across the shot, while digital compositing supervisor Paul Rivera added aerial perspective to haze the background and some interactive lighting from the train on the buildings. "We had an additional element to simulate the glow hitting the side of the building, which was painted in 2-D to look 3-D, which I animated to make it flutter on the edges of the buildings," Rivera adds proudly.

Matte World Digital's most complex shot in *Newton Boys* was a scene in which the fraternal gang robs a train at sunset. At their Austin railway yard location, the production built a small loading dock and arranged for two trains to pass each other on adjoining tracks. The rest of the scene, including some old-style warehouses alongside the railroad and Chicago's ubiquitous two-building skyline in the distance, not to mention a brilliant sunset sky with moving clouds, were all contributed by Brett Northcutt. The challenge of this shot, as with the others that the San Francisco Bay Area firm created for the film, was Linklater's desire to hold on it. "We prefer matte shots to play for 6 to 8 seconds maximum, to minimize the audience's ability to figure out the illusion," Northcutt says. "That shot lasted 16 seconds of screen time, so the audience was able to dwell on it. The Newton boys come into frame from the loading dock at camera left, and walk deep into frame. Then we added a subtle tilt up with them to show the Chicago skyline. Another tricky thing was that the passenger cars on the right were moving out of frame during the shot, so we had to have an articulated matte line so we could add in the warehouses behind them. It would have been very displeasing compositionally not to have buildings on the right to balance the frame. Also, on that particular day, the locomotive wasn't working. John McLeod, the practical effects man, rigged the train so steam would come out from under the wheels, but we ended up adding a steam element later to create the smoke coming out of the smokestack."

Adding the steam element and creating the dusky look to the shot was aggravated by the fact that the locomotive was actually shot against a bright sky. "That was quite a different sky than the one in the plate," Rivera adds, "so it was challenging to get Brett's painting of the really dark buildings behind the train to integrate with the light on the train in the plate."

— Ron Magid

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ambitious heist, the notorious $3 million dollar shakedown of a Federal mail train. A careful blend of special effects and camera movement was employed to simulate the brothers' daring rooftop siege of the train. "The whole scene was done with a static train, because it would be impossible to film it at night on a moving vehicle," James explains. "The actors were running over the train's roof, jumping over trestles. The smokestack would have been sending out sparks, so we set fire to some cedar chips inside a wire cage, which sent off tiny slivers of sparks. We also blew some smoke through the scene with the help of a wind machine on a forklift, creating the illusion of motion.

Willis Newton (MAtthew McConaughey) goes low-profile at a low-key bar, under the watchful eye of the camera and Peter James (in background, at left).

"The operator, Gary Jay, used a handheld camera for the whole scene, because we wanted a 'rocking around' feeling. When we got to the cockpit of the locomotive, we rigged little lights in there to pick out some detail. We taped small, pencil-like Kino Flos behind some of the pipes, and we also hid little pepper lights in there to get just enough of a glow on the instruments to make it feel like nighttime.

"For the actors, we used bounced light. My gaffer, Brian Gunter, makes little cardboard box lights that are about 18 inches square and lined with silver foil. You can screw in any lightbulb up to 250 watts within the box, and put Velcro diffusion and gels on the front, as well as an eggcrate grid so that the light can be directed. Sometimes these lights can just sit on the floor, but they also have a little attachment on the back so that they can be put on a C-stand or clamped up somewhere. We used up to six of them in some scenes. I would use them for the backgrounds, to light very dark wood paneling or cupboards and put a slight sheen on them."

When the action moved outside the train, the identity of a certain character on the darker side of the train became an issue, so James manipulated his lights to serve both an aesthetic and narrative purpose. "I decided to shoot all of the action in silhouette, against highlights on the train or a lit background," he says. "To give that part of the train a shine, we had 12Ks and 6K Pars bouncing off 12' by 12' muslins, and had the actors silhouetted against that. For the brighter side of the train we used a Musco light, which also lit the background beyond the train. We also used Condors with 12 6Ks and filled

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that light in with the same combination of muslin and 12Ks and 6Ks."

As he has in his previous films, Linklater makes selective use of slow motion in *The Newton Boys* to pinpoint crucial moments of psychological clarity. "The Newtons were very successful at what they did, but there's a moment during the big robbery in Toronto when something finally goes wrong," Linklater details. "Willis' gun jams in the middle of the street and he actually has to shoot someone in the shoulder, which doesn't happen anywhere else in the movie — the Newtons never killed anybody. When the gun jams and he realizes that two guys are going to come after him, time seems to stop. Whenever I do slow motion, it's to [portray] how your mind would react to a big moment like that, when time just seems to go out of whack."

Adds James, "We didn't want to make the slow motion look too 'action-adventurish,' with shots that would take people out of the movie," James adds. "We do have one montage sequence that was handled by [second-unit director of photography] Erich Roland, in which there are a whole series of safes being blown up. Hydraulic rams would blow the doors off, and coins and jewelry inside the safes would literally fly out. On some shots we tried to pull focus with the safe door shooting out maybe 50 feet, right toward the camera. Those were very exciting shots done at 120 frames per second. We kept focus for about half the way. We had the Panavision camera protected with Plexiglas and sandbagged in. Some of the objects that flew out made it as far as the camera."

In one of the most eye-catching scenes in the film, Dock Newton (Vincent D'Onofrio) and Jess (Ethan Hawke) are standing across from a bank on lookout during a robbery, chatting idly, when an 11-inch-thick bank vault door suddenly skids all the way across the road and slams into the curb in front of them. "We

had the door on a wire, and special effects coordinator John McLeod's department rigged sparks underneath the door," James recalls. "I had to light it so that it looked like a metal door, with a soft backlight so that the metal shone. Apparently, the scene is based on the truth — a vault door did fly out of a building and across the street before it hit the curb in front of two of the Newtons. If it had hit them, it would have surely killed them!"

Reflecting upon the project, James lauds Linklater's fresh and humanistic approach to *The Newton Boys*. "Rick is a bright filmmaker who's got his own vocabulary," the cinematographer states. "He's not one of those directors who wants to break up the action by cutting quickly and hurrying the actors. This was a huge step for him as a director. There are some big action sequences in the film where banks are blown up and so forth, but somehow it's all done in a very cool, offhand manner. It's never too in-your-face."

For his part, Linklater says that his goal in directing the film was simply to mirror the exuberance of the Newton brothers and the free-wheeling era in which they prospered. "My worst nightmare was that the movie would get stuffy, or that we would treat it self-importantly," he says. "That's what I really hate about most period films; Westerns in particular can get really full of themselves. I told the actors and everybody on the film to think of this movie as contemporary. We were depicting a moment in time that was real, and the Twenties [decade] was one of the most light, wild, crazy, fun periods in history. People had just been through a lot with World War I and the flu epidemic — 40 or 50 million people had died worldwide that probably shouldn't have! I think there was a kind of recoil effect, which is where the Roaring Twenties came from."■

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A Friend in Need

Photos courtesy of HBO.

Cinematographer John Bailey, ASC returns to television for the first time in 15 years to collaborate with director Michael Apted on HBO's *Always Outnumbered*, a compelling story about streetwise survivors.

by Jean Oppenheimer

Photography by Bob Greene

Even a cinematographer as accomplished as John Bailey, ASC, who has built his considerable reputation on such films as *Ordinary People, American Gigolo, The Big Chill, Silverado, In the Line of Fire* and *As Good As It Gets,* admits that he was nervous at the prospect of returning to television after an absence of more than 15 years. He says he signed on to do *Always Outnumbered,* the HBO film adaptation of Walter Mosley's new book, *Always Outnumbered, Always Outgunned,* largely because he so enjoys working with director Michael Apted. "I'd shoot just about

anything he'd want me to do," says Bailey. "I loved the script, which is a contemporary African-American urban drama that doesn't exploit the culture of drugs and violence. Also, I deeply admire Laurence Fishburne, who plays the title role, and I was eager to work with him."

Mosley's novel is a collection of interlocking stories about Socrates Fortlow (Fishburne), an ex-convict struggling to maintain his dignity while living in the tough turf of South Central, a predominantly black Los Angeles neigborhood. In part, the movie focuses on the small, daily rituals of Fortlow life, which include collecting the bottles and cans by which he earns his livelihood. It also concerns his relationship with two people: an older friend, Right Burke (Bill Cobbs), who is sick and dying, and a violence-prone 11-year-old street kid named Darryl (Daniel Williams). Socrates takes the youngster under his wing and tries to teach him how to live with pride and morality in a world that is essentially hostile to black men.

"Since I hadn't done television for so long, I had to start thinking differently," says Bailey, who began his career as a camera assistant on commercials and National Gegraphic documentaries. "Obviously, for television I had to think in terms of the different [1.33:1] aspect ratio. What I found was that I essentially had to make the images and lighting less complex, a little bit reductive."

Since shooting *The Accidental Tourist* in anamorphic 10 years ago, Bailey has worked mainly in widescreen 2.35:1, a format he now considers to be second nature. "Suddenly, on *Always Outnumbered,* I was dealing with a frame that was almost half that width. You are not able to have as much visual information in the field, so what you do put in has to be significant. There's also not a lot of time for the eye to roam around."

According to the cameraman, what matters in television is the raw emotion of the human face. Due to the size of the average TV screen, if there are too many objects competing with a face, the image all becomes a blur: too much peripheral material is distracting.

"If you feel you are connected emotionally to the material, you have to trust that instinct — in the same way a musician who is in the flow may play without concentrating on the notes, or a dancer can perform without concentrating on the steps."

— John Bailey

On *Always Outnumbered,* Bailey consistently found himself removing background material from the frame, such as pictures on walls, or objects on tables. He either moved things to a corner of the frame or eliminated them entirely. "If there were things on the walls behind the actors that I couldn't move or didn't want to because they had been established, I tried to make the wall go away by taking light off of it," he says. "I'd bring the faces into the foreground. Television viewers aren't that interested in the larger scale, because those things don't really translate too well to the medium."

Bailey also found himself using wider lenses, favoring the wide end (17mm-24mm) of the Primo 4:1 zoom. For close-ups, he leaned toward a 32mm or 35mm. Although *Always Outnumbered* will have a theatrical release overseas (as do most HBO movies), Bailey used more extreme close-ups and medium shots than he would have for a true feature film. His standard-size close-up on an anamorphic film includes the shoulders. "Getting into a close-up that cuts into the chin and forehead is not something that I would normally do while shooting a theatrical feature. I find it often to be incredibly intrusive. You can do it on TV, however, because even if you have a 35-inch screen, you're sitting eight or 10 feet away and the screen image doesn't fill that much of your field of view.

"Because the screen is square, it is easier to make small image and angle changes and have the cuts work," he adds. "If you're shooting anamorphic, you need a substantial image and angle change to make the cut work smoothly. On TV it's easier to jump-cut."

Nearly the entire picture was shot on location in Los Angeles. One exception was Socrates' tiny apartment, which was constructed in a warehouse. "Even though it had wild walls, when Fishburne moved five or six feet, he'd move from one side of the room to the other," the cameraman recalls. "I didn't want to exaggerate the perspective, but I wanted

Opposite: Right Burke (Bill Cobbs, left) and Socrates Fortlow (Laurence Fishburne) ponder their problems on the streets of South Central. Cinematographer John Bailey says that he tried to make optimum use of the smaller television frame by homing in on the characters: "You are not able to have as much visual information in the field, so what you do put in has to be significant." Below: Socrates makes his daily rounds against a bleak urban backdrop.

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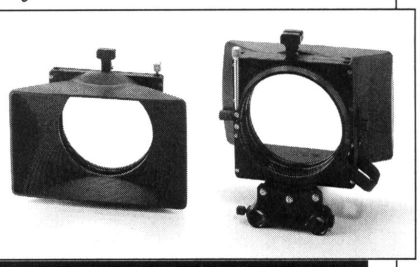

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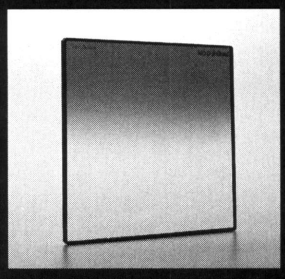

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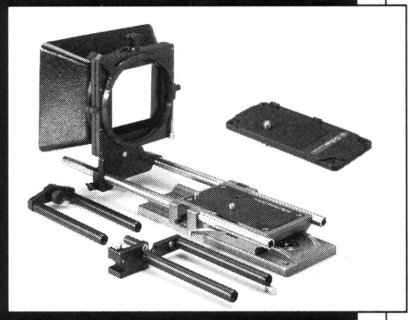

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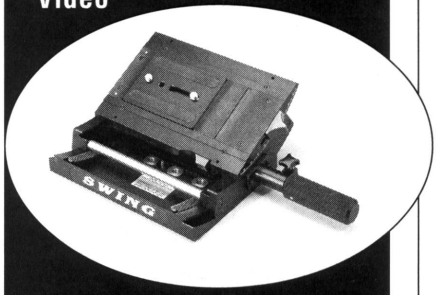

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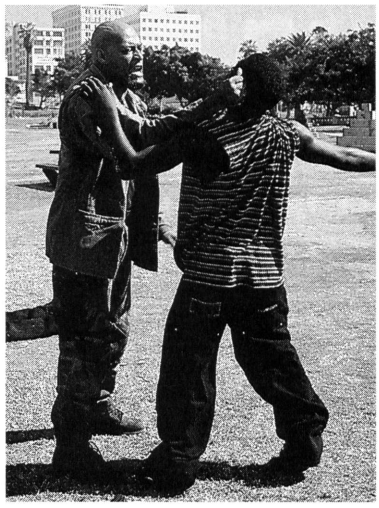
A Friend in Need

the move to have some drama, so I used wider lenses. That way we got a field-size change with very small moves."

Faced with a television shooting schedule, the crew didn't always have time to set up elaborate dolly shots. If actors were moving fast or covering a great deal of distance, Bailey would call for an extreme telephoto lens. "I used a 400mm quite a lot, to maintain the field when we wanted to move without people changing size," he remarks. "For one nighttime chase scene, I used both a 200mm and a 400mm. Focus becomes really crucial in those types of situations, but I had a wonderful assistant, Rickey Menton, and operator, Richard Turner. They work together a lot, and they collaborate very well."



Socrates confronts a young punk in Echo Park. Much of this sequence was filmed with a Steadicam.

One particularly difficult location in Echo Park required the use of a Steadicam. In the scene, Socrates and a group of his friends go to the park to confront a young punk who has committed a murder. The slope of the hill was such that it proved difficult to lay tracks. Conventional lighting was also difficult, so Bailey and gaffer Michael Moyer flew internally-lit HMI helium balloons.

The film was shot on Eastman Kodak Vision 500T 5279 and EXR 5293. In designing the lighting scheme, Bailey took two factors into account: the look and feel Apted wanted for the movie, and the medium's 1.33:1 aspect ratio. Although the story unfolds against an urban backdrop — much of it at night — where guns, drugs and violence are often everyday occurrences, the film does not dwell on street life or criminal behavior. "Michael didn't want to give the show a gritty 'street' feel," says Bailey. "He didn't want it to ever verge on the sinister." That meant lighting scenes bright enough so they didn't have a down-and-dirty feel, but avoiding anything that was high-key.

The second consideration was the TV format. "You are looking at the picture on a smaller screen, so you can't really highlight or detail or emphasize small things quite as much," he notes. "They're too ephemeral. Therefore I tried to use a very strongly-defined single source, whereas on features Moyer and I tend to utilize delicate secondary and tertiary sources, highlights and counter keys. On *Always Outnumbered* we basically used a single source-key, a little bit of fill and, if needed, maybe a slight back-

Burke and Fortlow discover that companionship helps to ease the pain of their hardscrabble existence.

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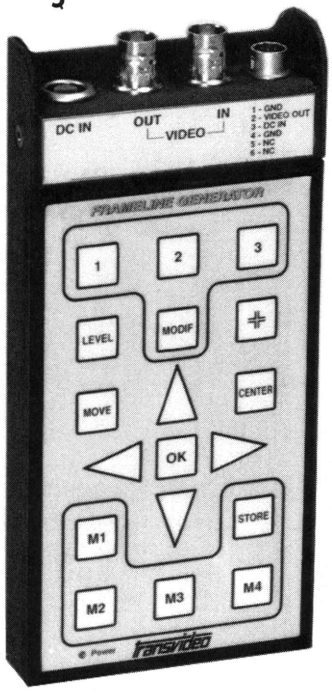

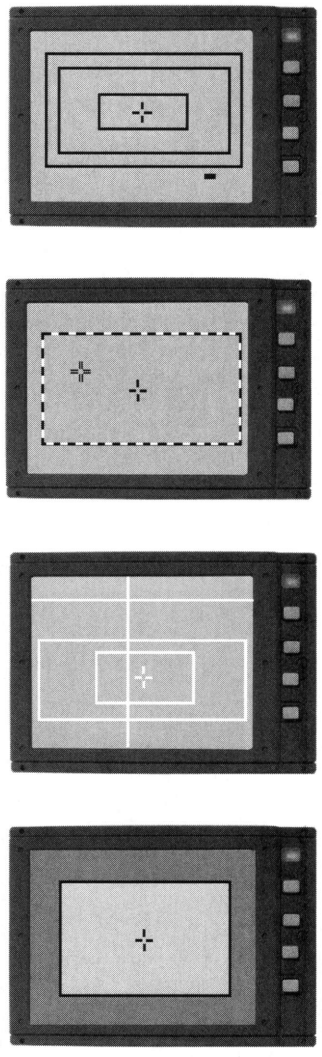

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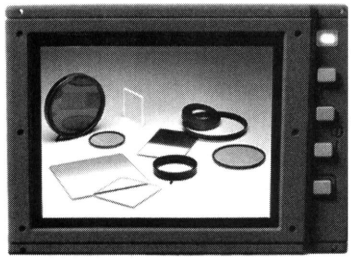

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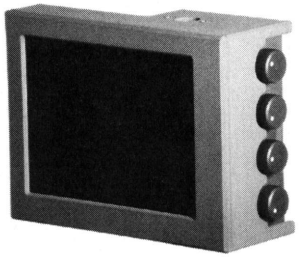

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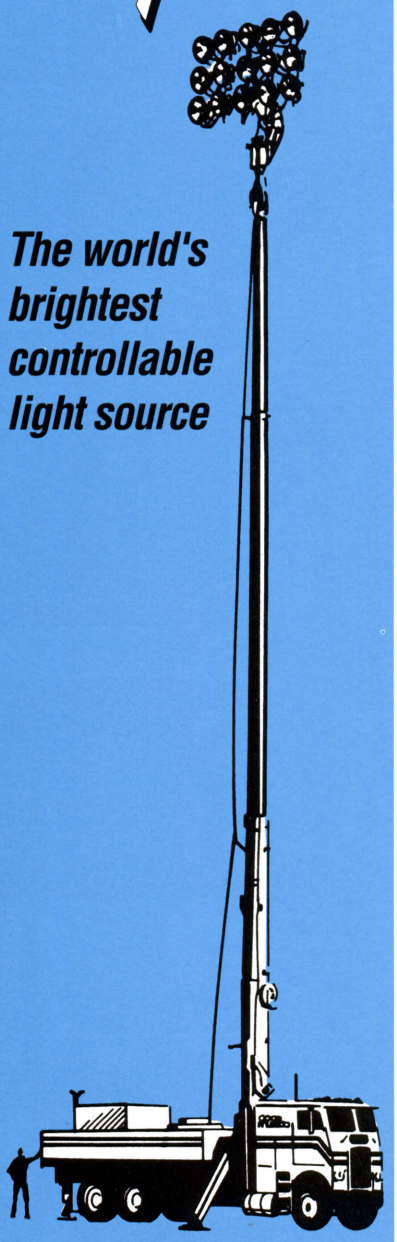
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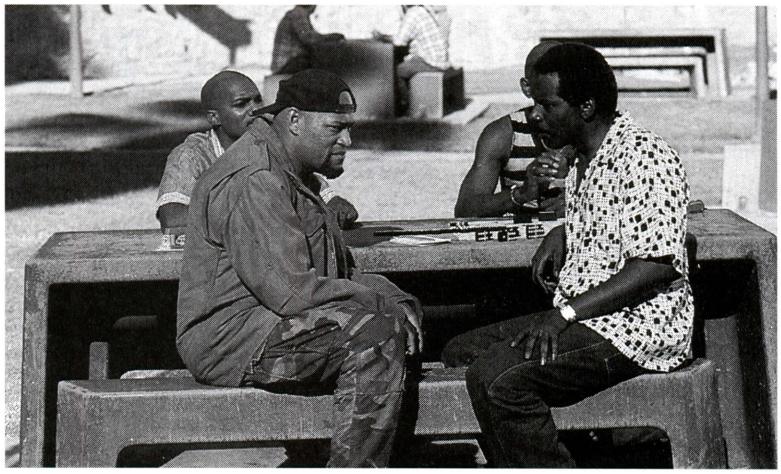
A Friend in Need

light for separation."

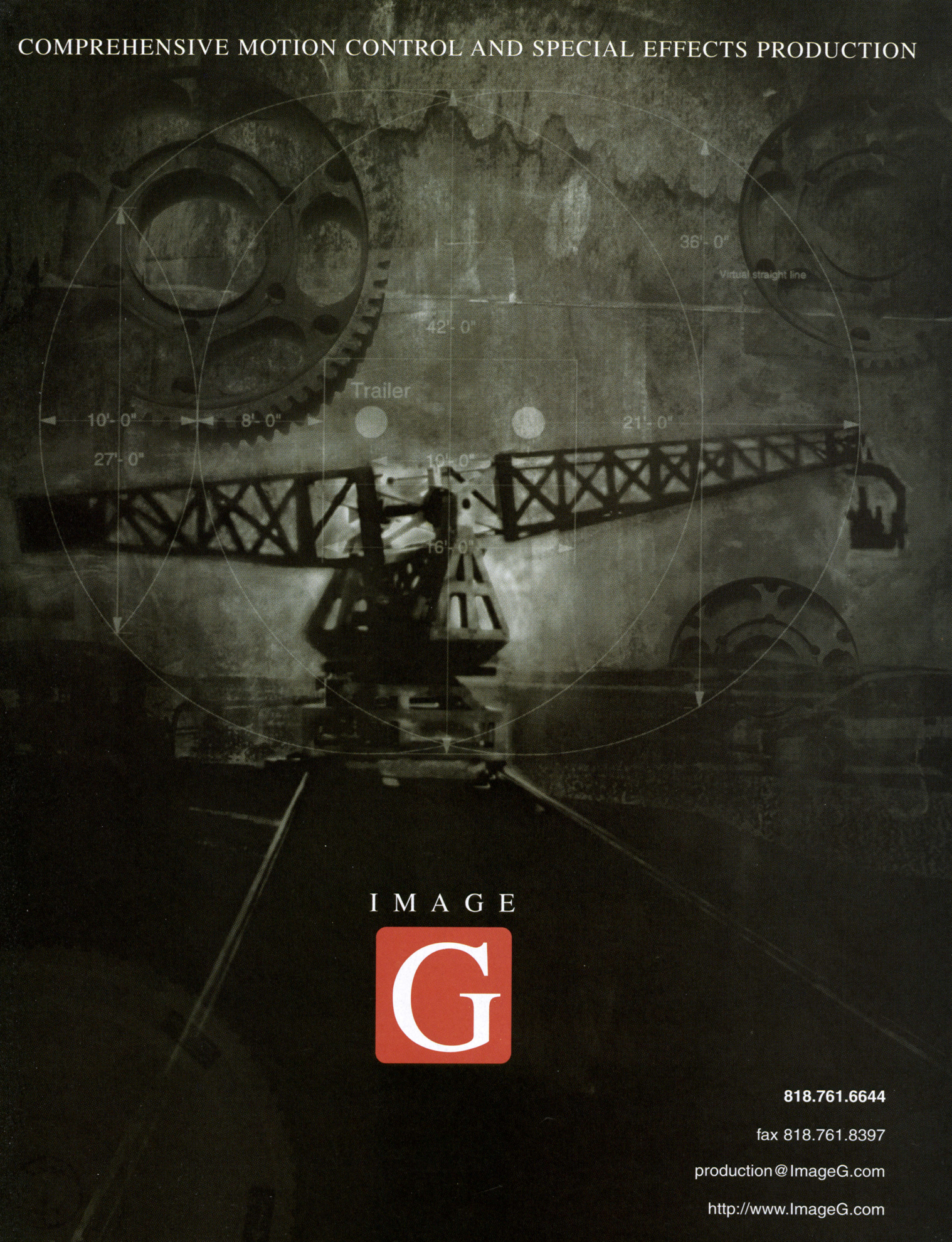
For every scene, Bailey created what he calls a "nominal source," an illumination which purports to be the source although it may never really be established or seen in frame. He also kept the colors of the lights very simple for most of the picture, as if doing a study in grays or neutrals. One exception, however, was a bar scene set late in the film. Two bars are shown in the movie: a dive where Socrates goes to score painkillers for Right Burke, and a more high-class joint with music and dancing, where Socrates and Burke head for the dying man's last hurrah. The latter scene, shot at an L.A. establishment named Dilley's, offered Bailey a chance to use more color. "Burke says he wants to go somewhere where he can have a few drinks and look at pretty women's legs," explains Bailey. "I wanted the lighting to be a little glitzier, so we used more gels and colored lights. We weren't trying to make it seem like a disco palace, just a slightly more upscale bar. For rims and backlights Moyer and I used pinks and greens, which we didn't use in the rest of the film. I wanted this scene to be a little richer because it's Burke's last night to live."

A table lamp provides the nominal light source, but Bailey ended up using multiple units to suggest his illumination. He used colored Kino Flos to simulate neon rims and backgrounds. Additionally, he lit below and behind the bar with blue Kino Flos, and also illuminated the liquor bottles on the shelves. Pulling the bottles out from the back of the shelf a little bit, electricians laid down 4' or 8' fluorescent tubes (depending on the shelf size), and then repositioned the bottles in front of the lights. "That [technique] made the glass glow, and it also provided a little bit of depth," remarks Bailey. "We also put a Kino tube below the bar surface, where the sink and soda dispenser were," he continues. "We often put fluorescent tubes down as low as possible, to provide a bottom light shining up at the bartender or anyone else who was behind the bar. It was a nice source light. Most of those were neutral or slightly on the coolish blue side. I was lighting the foreground warm and the background cooler in contrast."



In portraying life on the streets of L.A., director Apted didn't want the drama to be too gritty or sinister, so Bailey tried to strike a tonal balance somewhere between "down-and-dirty" and "high-key" extremes.

To warm up the light, Bailey used either straw gels or a ¼ or ½ CTO, but overall he tried to keep his array of gels fairly simple. "Again, there's that whole notion of it being reductive," he comments. "If I wanted warmth, I used an ⅛, ¼ or ½ CTO, rather than going through a lot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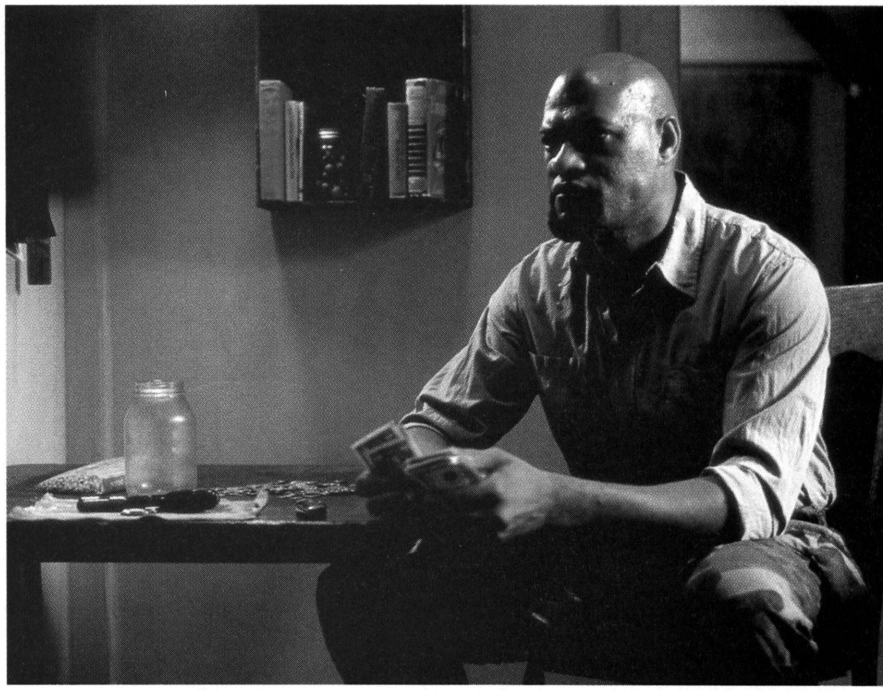

Low-key lighting enhances the mood as Socrates takes stock of his dispiriting situation.

of different kinds of straws or ambers and mixing a lot of things together. If I wanted a cool light, I tended to use a ⅛, ¼ or ½ CTB."

The film's last scene is particularly moving. This climactic moment shows Socrates and Burke crossing a street and sitting together on a bench at a bus stop on a concrete island in the road, after which Socrates boards a bus. In the background, stretching out behind the men, is a park, which was illuminated by an 18K on a Condor. "Instead of lighting the bus stop area with one strong source, we rigged an overhead light directly above the bench, as if it were a high streetlamp," explains Bailey. "It was just a pool of light, encompassing the bench. I had to cut light from our big HMI in order to light it."

Spot Pars lit up trees in the park behind the two men, providing a sense of depth. "This was the end of

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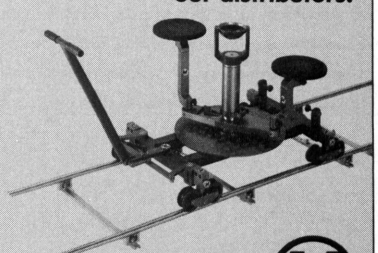

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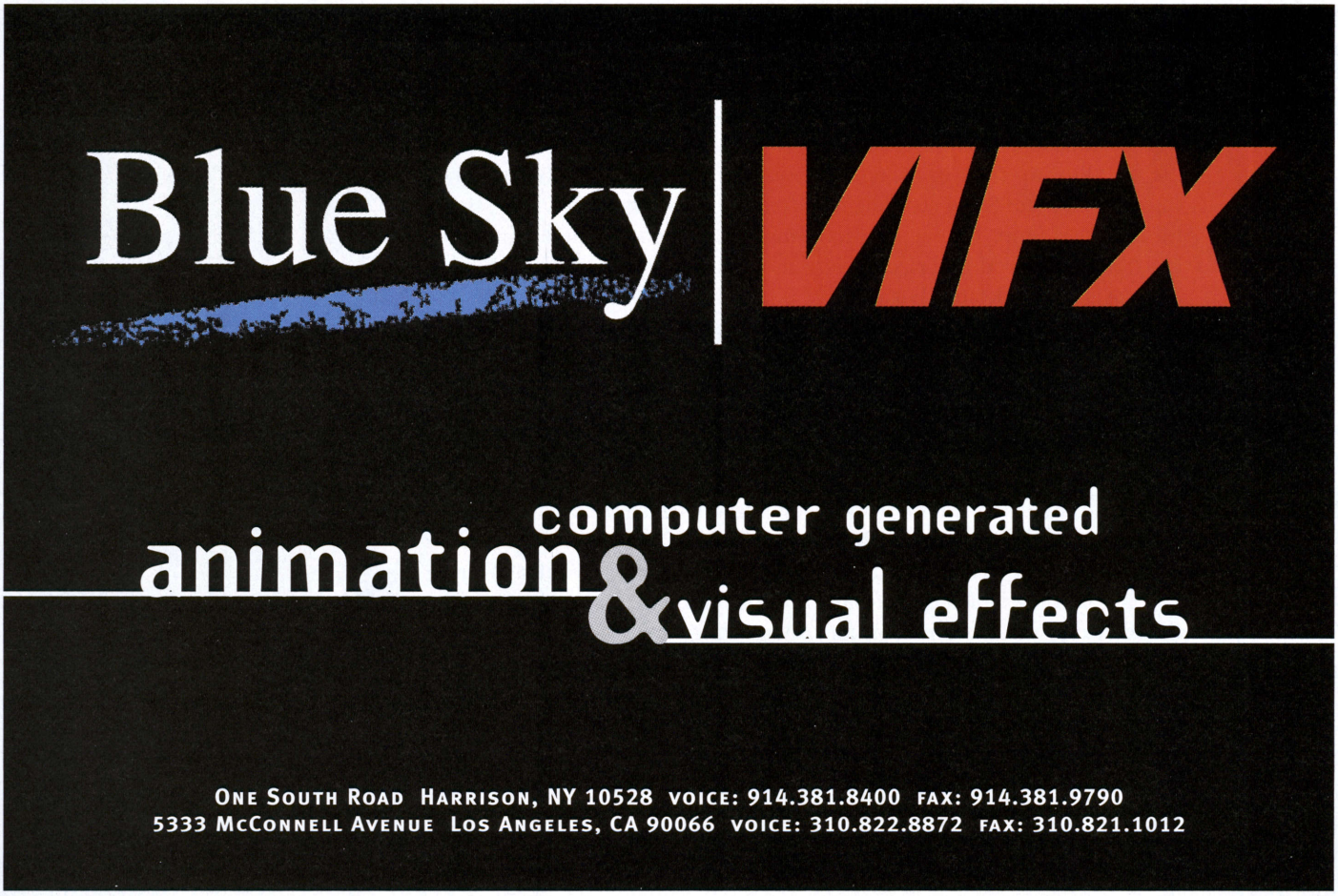
the movie, the characters' last scene together," Bailey notes. "They are two men sitting on a bus stop bench in the middle of the night, and I wanted to isolate them from the rest of the world. It was their final moment together — a moment out of time — and I wanted it to have a kind of suspended feeling. We lit the scene that way not because we needed a source light illuminating them; I already had a source light from the HMI over in the park. Rather, we wanted an individual light that sealed them off from the rest of society."

According to the cameraman, the decision to light the scene this way was purely emotional in nature and had nothing to do with photographic demands. He observes that over the years, his work has become more instinctive, an approach he strongly endorses. "I used to talk about how I plotted the scenes and planned the work. Now I find — especially with films about character and relationships — that I work more and more without a game plan. I immerse myself in the material and try to stay responsive to it."

Bailey notes that it is not until a picture wraps that he is usually able to offer reasons as to why he made certain creative choices. "Some cinematographers are truly visualists; they are predominantly interested in the purely visual development of the film," he muses. "I'm interested fundamentally in the dramatic and emotional values that are intended, and the photography is the device that you use to do that."

Of course, he points out that a greater degree of time and thought is required for action-oriented or effects-laden films which employ bluescreens, motion-control rigs or mattes. But for films without such technical considerations, where setups involve just the camera and the actors, what matters is what people bring to the set every day. That's why attending rehearsals are of paramount importance to Bailey. During these sessions, he can talk to the director, watch the blocking and explore the rhythm of the scene before principal photography begins.

Assessing his most recent project, Bailey says that he views *Always Outnumbered* as a dramatic, literary work which is more oriented toward character and performance than technical logistics. "I loved doing this film," he concludes. "If you feel you are connected emotionally to the material, you have to trust that instinct — in the same way a musician who is in the flow may play without concentrating on the notes, or a dancer can perform without concentrating on the steps." ■



Big-money acquisitions increase the stakes at the increasingly frenetic festival, but quality films carry the day.

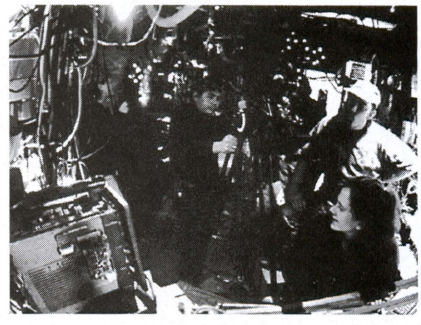
by Stephen Pizzello, Andrew O. Thompson and Holly Willis

Sundance '98: A Prospector's Paradise

When one arrives in Park City for the Sundance Film Festival these days, the atmosphere is suspiciously akin to that of a resort casino, with Main Street standing in for the Vegas Strip. The high rollers hail from Hollywood, and place their bets not at blackjack tables but at chic little bistros. This year's biggest speculator was Miramax, which shelled out some staggering sums: $6 million for Village Roadshow Pictures' *The Castle* (even though the film had been available for a pittance prior to the festival); $6 million for the worldwide rights to Brad Anderson's *Next Stop, Wonderland* (an arrangement that included a two-picture deal with the director); and $2.75 million for U.S. distribution rights to Lion's Gate Films' quirky comedy *Jerry and Tom,* a Mamet-like gabfest about a pair of oddball hitmen. Several other companies were nearly as profligate. Trimark Pictures dropped some coins of its own into the cinematic slot machine by acquiring worldwide rights to Grand Jury Prize winner *Slam* (see Points East, *AC* Feb. '98) for $2.5 million.

Amid all of the wheeling and dealing, however, film lovers were treated to a cinematic slate that managed to be both entertaining and substantive. From an artistic standpoint, the festival's breakout picture was Darren Aronofsky's π (see following article), a cerebral stunner which showcased daring black-and-white photography by cinematographer Matthew Libatique. Audiences also flipped for *Frat House,* a documentary in which guerrilla filmmakers Todd Phillips and Andrew Gurland take viewers on a hilariously sardonic but frequently harrowing tour of the collegiate Greek system's super-secret hazing rituals; *Smoke Signals,* Chris Eyre's tale of a young Native American's struggle to ensure that the body of his estranged father receives a proper burial; and *Out of the Past,* a documentary chronicling a Utah teenage lesbian's battle to form a gay-straight alliance at her high school.

In all, *AC's* Sundance team managed to view more than 30 films during the festival's 10-day run in mid-January. Four of those we found



Top to bottom: Paranoid mathematician Maximillian Cohen (Sean Gullette) installs a superchip in π; director Darren Aronofsky (center) and cinematographer Matthew Libatique (lower left) plot their next move; the filmmakers at work in the cramped apartment set, which was built in a Brooklyn warehouse.

to be the most impressive, particularly from a photographic standpoint, are detailed in the following pages; two other accomplished entries, *Blind Faith* and *Dead Man's Curve* will be featured in next month's issue. — S. Pizzello

π (U.S.)
Director: Darren Aronofsky
Cinematographer: Matthew Libatique

An artful paean to mathematics and the Meaning of Life, π draws viewers into a paranoid and hallucinatory world that could make Kafka himself check the locks on his doors. Shot on 16mm black-and-white reversal film at a cost of just $60,000, this mind-blowing entry offered Sundance audiences a truly cinematic blend of expressionistic lighting, blinding white highlights and exhilarating subjective camerawork.

A good deal of the tale transpires in the cramped Manhattan apartment of the sullen and cerebral Maximillian Cohen (Sean Gullette), who has raised numbers-crunching to the level of high art. Obsessed with a quest for numerical order in the universe, Max spends his days hunched over the keyboard of a supercomputer, centering his search around the seemingly random patterns of the stock market. On the rare occasions when he emerges from this self-imposed wormhole, Max pays visits to his Go-playing mathematical mentor, Sol (veteran character actor Mark Margolis), who has spent a lifetime studying the infinite transcendental intricacies of the geometric conundrum pi. Max's forays into the outside world are fraught with angst, however, as he is incessantly pursued by a pair of ubiquitous figures intent on tapping his talents: the sinister representative of a Wall Street conglomerate seeking financial domination of the marketplace, and the impassioned disciple of an ultra-religious Jewish sect which hopes that Max can help them unlock the secrets of their holiest text.

This decidely unique narrative is brought to the screen with considerable panache by first-time feature director Darren Aronofsky, 28, whose debut earned him the Sundance Festival's prestigious Directing Award. Equally impressive is the work of 29-year-old director of photography Matthew Libatique, who has also lent his skills to numerous music videos.

A Brooklyn native, Aronofsky first studied filmmaking at Harvard, where he made the short *Supermarket Sweep* (also starring π's Sean Gullette), a finalist in the 1991 Student Academy Award competition. Libatique, a native of Queens, became intrigued with the creative possibilities of music videos during college, but says that he first cultivated a serious interest in cinematography when a girlfriend introduced him to the photographic glories of Vittorio Storaro, ASC, AIC's work in *The Conformist.* After graduating from their respective alma maters, Aronofsky and Libatique both attended the American Film Institute, where they met just days after their arrival during a screening of *Supermarket Sweep.*

While honing their skills at AFI, the pair teamed up to shoot a short film called *Protozoa,* an experience which confirmed their creative chemistry. Aronofsky says the he and Libatique both admire the films of directors Martin Scorsese, David Lynch, Roman Polanski, David Cronenberg and particularly Akira Kurosawa. The visual style of π was further influenced by the work of still photographer Ralph Gibson, Rod Serling's television series *The Twilight Zone,* the black-and-white Japanese sci-fi film *Tetsuo: The Iron Man* (1992) and also *Let's Get Lost* (1989), a high-contrast black-and-white documentary about jazz trumpeter and singer Chet Baker. Says Libatique, "Darren wanted to shoot π in black-and-white for both aesthetic and budgetary reasons. He wanted the most contrasty black-and-white possible, with really *white* whites and really *black* blacks. I tested a number of 16mm stocks during prep, but we decided to go with reversal stock after watching *Let's Get Lost.* Once we saw what could be done, we did more research into reversal film, and I fell in love with the idea of shooting the film that way."

Aronofsky says that he envisioned π as an intense character

Sundance Award Winners

Grand Jury Prize:
Slam (drama), produced by Henri M. Kessler, Richard Stratton and Marc Levin and directed by Marc Levin; *Frat House* (documentary), produced and directed by Todd Phillips and Andrew Gurland; *The Farm* (documentary), produced and directed by Jonathan Stack and Liz Garbus.

Cinematography:
2by4 (drama), Declan Quinn; *Wild Man Blues* (documentary), Tom Hurwitz.

Filmmakers Trophy:
Smoke Signals (drama), directed by Chris Eyre; *Divine Trash* (documentary), directed by Steve Yeager.

Directing Award:
π (drama), Darren Aronofsky; *Moment of Impact* (documentary), Julia Loktev

Waldo Salt Screenwriting Award:
High Art, Lisa Cholodenko.

Audience Award:
Smoke Signals (drama), produced by Scott Rosenfelt and Larry Estes and directed by Chris Eyre; *Out of the Past* (documentary), produced and directed by Jeff Dupre.

Freedom of Expression Award:
The Decline of Western Civilization, Part III, produced by Scott Wilder and directed by Penelope Spheeris.

Special Jury Prize:
Andrea Hart (performance), *Miss Monday.*
Latin American Cinema Award: *Who the Hell is Juliette?* (Mexico), produced and directed by Carolos Marcovich.

Short Filmmaking Award:
Snake Feed, directed by Debra Granik; honorable mention to *Human Remains,* directed by Jay Rosenblatt.

sioned π as an intense character study that was partially inspired by his avid consumption of books by "freaky conspiracy theorists." He notes, "In film school we started off doing 'portrait films,' which are basically like little verité documentaries focusing on one person. I decided to do something similar with π, homing in on Max and building the entire movie out of his head."

In bringing Max's skewed perspective to the screen, the filmmakers set up some ground rules. "I wanted to make a purely subjective movie, in that I never wanted to cut away to the bad guys scheming and plotting," Aronofsky explains. "We constructed our whole visual language from that strategy. For example, Matty and I decided that we would only shoot over Max's shoulder, and never over another character's. If Max was talking to another character, we tried to shoot them straight on, right off the axis, whereas we'd shoot Sean from more of a profile angle.

"We also used macro lenses — partly because we were dealing with such an abstract film stock, but also because we really wanted to focus on the mathematician's gaze and what he was looking at. We tried to show the details of his universe as much as possible, like what was at his fingertips. We thought that close-ups would look great with the film stock we were using, and we tried to tell the story in a very 'cutty' way with lots of different images."

Libatique offers, "To get the look we wanted, I shot on Eastman Kodak 200 ASA Tri-X [7278] and 50 ASA Plus-X [7276]. We had a schedule of just 28 days, and we had a lot to shoot because Darren believes in coverage. There are probably 50 percent more cuts in this film than in your average 85-minute film."

Although Max's apartment was a set built in a Brooklyn lighting warehouse, the space was still relatively cramped. New York's Broadway Stages provided the filmmakers with a small tungsten lighting package, but Libatique and production designer Matthew Maraffi also incorporated many practical bulbs (such as MR-16s and 150-watt flood lights) into the actual design of the apartment set. "Max is a renegade mathematician who has retreated from the world so he can pursue his studies," the cinematographer points out. "We wanted him to be a bit like a modern-day Dr. Frankenstein. In the apartment set, I shot mainly with Tri-X through a yellow filter. I didn't do tests throughout the whole gamut of filters, because I knew that yellow or green would be the lightest filters I could use without having to bring in more lights — which I didn't have. I eventually chose the yellow filter because I liked its effect on the highlights. I wound up shooting Sean's face at a reflective stop over, and the yellow filter really blew out his features and lent a really interesting look to most of the scenes in his apartment. I knew that it probably wouldn't wash for the whole film, though. As Max gets closer to what he's trying to find, the film gets progressively darker, especially in his apartment. Toward the end of the story, there's barely any light in the room, and just shapes of what you've seen before. For those sequences, I pulled the yellow filter and began exposing his face at key. With the reversal, I was really playing with the latitude of the Tri-X. I wasn't scared of the high or low ends; I just tried to place his face within that three-stop latitude. If I wanted his face to be hot, I just exposed it to favor the high end, but if I wanted it down, I'd expose it at key, which gave me really great results. Toward the end of the film, I also rated the film at 400 and pushed it a stop. That approach did give us more grain, but neither Darren nor I were afraid of that."

Libatique switched to Plus-X for exterior scenes, but occasionally mixed his two stocks near the end of the film "to bridge the gap between Max and reality."

Libatique's A-camera on the project was an Aaton XTR-Prod, most often equipped with Canon's 8-64mm and 11.5-138mm zooms, or an Angenieux 5.9mm wide lens. "The XTR could do single frames, which was amazing," he submits. "The Japanese game of Go was a big part of the film, and we did some stop-motion animation with a game board for transitions. The XTR is really light, so we could use it for handheld work as well."

The filmmakers also used Aronofsky's Bolex camera, in conjunction with a special rig attached to lead actor Gullette, to achieve some beautifully surreal perspectives that recall the work of James Wong Howe, ASC in the John Frankenheimer film *Seconds* (see *AC* Nov. '97). "The rig consisted of a Bogen tripod attached to a weight belt; the tripod had a head that could support a still camera, but we attached our Bolex to it and added a 10mm lens. Sean wore the rig, which was relatively light. As he moved, his head was always in the center of the frame as the background moved beyond him. That technique provided a weird perspective that really brought you into the character's mindset. We used it for a shot of him running down the street, and also for transitional scenes in which Max was walking through Chinatown. [For the latter scenes,] I overcranked the camera for shots where he was in the frame, but undercranked all of his POVs at 12 fps to emphasize the fact that he wasn't relating to the world at all. We later used the rig for some key transitional scenes in which Max is having severe migraines; we attached this vibrating device to the camera and used long lenses to get really shaky shots of his nose and eyes. That rig gave us the ultimate in subjectivity, but we used it selectively because we didn't want to overdo it."

Libatique feels that the filmmakers were successful in their quest to achieve the best possible visuals within the project's logistical and budgetary constraints. "I don't think it's right to try to make a 16mm film look like *The Conformist*," he maintains. "On this project, we embraced our limitations. My motto throughout was 'low-fi stylization.'

"There was an intense focus on this shoot," he adds. "Sean was really committed the character he was playing, which intensified our obligation to give every technique a purpose. We put a lot of pressure on ourselves, but I think it ultimately served the film well."

π was picked up for distribution by Live Entertainment, and is slated for a mid-summer release in major U.S. cities. — S. Pizzello

2by4
Director: Jimmy Smallhorne
Cinematographer: Declan Quinn

The Sundance jury was so impressed with the haunting, nocturnal colorscapes of *2by4* that they bestowed Best Cinematography honors upon director/actor/co-writer Jimmy Smallhorne's debut feature, an atmospheric portrait of a working-class, Bronx-based Irish immigrant coming to terms with family dysfunction and sexual schizophrenia. Responsible for the film's moody imagery is cinematographer Declan Quinn, who had previously exploited low-level lighting situations to impressive effect on Mike Figgis' *Leaving Las Vegas* (see Beyond the Frame, *AC* Feb. '96) and Mira Nair's 16th-century period drama *Kama Sutra* (*AC* Feb. '97), which earned a 1996 Independent Spirit Award for cinematography and a 1998 Spirit nomination, respectively. The Irish-American cameraman has also contributed his talents to such films as Maggie Greenwald's *The Kill Off* and *The Ballad of Little Jo*, Louis Malle's *Vanya on 42nd Street* and

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Sundance '98: A Prospector's Paradise

In *2by4*, Smallhorne stars as Johnny Maher, the chief of a ragtag Irish construction crew headed up by his Uncle Trump (Chris O' Neill). Anguished by specters of sexual abuse, the industrious Johnny at times neglects girlfriend Maria (Kimberly Topper) for the company of crack-toking male hustlers. The fickle Trump, meanwhile, has been bilking both his Hasidic contractors and the carpentry crew to further his own lurid cravings, which prove to be directly related to Johnny's distress.

Due to the time and budget constraints, Quinn shot 50 percent of *2by4* handheld with a Panavision Platinum and a full set of Primo lenses. Since Smallhorne favored an unrefined look for the 90-minute picture, Quinn used Eastman Kodak's Vision 500T 5279 for night scenes, frequently pushing the emulsion's exposure rating to 800 ASA to capture existing ambiances. He explains, "We found places in the Bronx which had higher existing light levels, like around the subway stations. [By pushing the Vision 500] you can expose in the light of a streetlamp, so we had very minimal packages on night exteriors; we supplemented them with 1K or 650-watt lights with the same sodium color as the streetlamps." By pushing the Vision 500 one stop, Quinn managed to use the T2.8 Primo 135-420mm zoom lens in existing light at night.

He continues, "There's one long-lens scene [shot on a T2.8 zoom] where Johnny moves in and out of shadow as he's walking towards us across a bridge against traffic, with people hustling along. We rigged some redheads up into the bridge above him so he would go through about four different pools of light, but the brighter pools of light were actually existing streetlights; we put up the ones at lower levels just to take the [characters] out of black every once in a while.

"Quite often, I shot these transitional scenes wide open, because depth of field really isn't an issue on wider landscape shots, and sometimes shooting wide-open gives you a slightly softer image. For scenes with a lot of dialogue, I would try to get a T2.8 or 3.5 so that there would be some sort of depth when we went into close-ups — I didn't want just an eyeball or an ear to be in focus."

In line with the illumination's realistic bent, Quinn motivated the infiltrating exterior light for night interiors in Johnny's apartment in shades of steel blue-green and amber, hues produced by sodium-vapor and mercury-vapor streetlamps, respectively. In creating comparable color temperatures, he had gaffer Bob Fiske put together gel combinations. He coupled CTO with amber to simulate sodium-vapor, while a mixture of green and blue effectively mimicked mercury-vapor. Along with this streetlamp look, gold tint and pale gold gels were used to create the warm, cozy aura of internal sources diffused by lampshades. Quinn elaborates, "For the light effect coming into Johnny's bedroom while he's asleep, we wanted the feeling that a neon sign is lighting the room: the color is shifting and there's movement from the light. I bounced nine-lights into an 8' by 8' Griffolyn and put different colors on different frames — pale gold, pale salmon, ½ blue and full green mixed together — and had key grip Aaron Dawley and his crew move them in front of the lights. The grips also moved flags in front of the lights so that the light levels would dip up and down."

To accent the shades cast in specific corners of Johnny's apartment, production designer Hazel Mailloux varnished each wall with a modeling tone approximating the hue to be projected upon it. When racked by torturous reveries of childhood abuse, a disoriented Johnny quivers nakedly before a wall stained blue-green, thus highlighting the "mercury" tint of Quinn's gelled fixtures.

Though minimalist lighting prevails in the film's night interiors, not all of them were shot to be underexposed. "Anything lit inside the room which was less graphic and more about seeing people's faces was not pushed," says Quinn. "But I did push darker, moodier scenes lit from outside with that sodium-vapor [haze] coming through windows. By pushing, I wanted to add a little more texture to the film — although with the 79, you don't see the grain, you just see it as additional softness in the image."

Johnny experiences his nightmarish flare-ups in sudden snatches which his mind manifests as fuzzy, dutched impressions of streets, living rooms and imperceptible figures. "I thought that the best way to go [with the flashbacks] would be low-tech," offers Quinn. "We shot his memory of the abuse that had taken place with a small Hi8 video camera, entirely from his POV. It's very abstract. We put a 2K micky outside the door, shooting into the lens, and did some shots of the uncle silhouetted by that light in uncomfortable POVs where it looks as if the uncle is over him. We shot the Hi8 video to be very contrasty and had a digital film transfer done from the video."

After a grueling day of construction work, Jimmy and his buddies routinely retire to the Landsdowne, a neighborhood watering hole operated by his uncle.

Below: Actor/director Jimmy Smallhorne vamps as *2by4*'s troubled protagonist, Jimmy Maher.

Quinn added slight supplementation to the actual fixtures inside this North Bronx bar: over the bar area itself (which was backed by a wall of forest green), he rigged multiple MR-16s to lend a hot, overhead sheen to the elongated serving area and throw bounce light onto the principals; an overall, soft ambient light emanated from some ceiling-secured 2K zips and five China lanterns. In achieving the overall ambiance, Quinn once again utilized pale salmon gels because "red doesn't reproduce really well on film — it gets a little fuzzy-looking, gives a more realistic atmosphere and takes some of the cleanliness off the 35mm image. To make it a little richer, I would sometimes double up the pale salmon and play it about 2 ½ stops under. For our key lights, we used a cleaner light that felt whiter: when you key-light faces with pale gold, gold tint or ¼ CTO, they look clean, and then the overall ambiance has a bit of an out-of-focus look because it doesn't focus the same way white light does on film."

After ending his erratic relationship with Maria, a sullen, cigarette-smoking Johnny drowns his sorrows at the Landsdowne. A scarlet side-profile shot cuts between Johnny and Trump, who is cackling and carrying-on a few seats down. As Johnny becomes privy to the true reasons behind his torment, his uncle's face takes on a malevolent, almost devilish air. Notes Quinn, "We had green [light shining] on the green wall behind him just to give some color contrast [to the pale salmon fill]. Sidelighting him was white light from Kino Flos rigged behind liquor bottles on the bar. With Jimmy we used an MR-16 over his head that just lit the air in front of him, bounced off the bar top and then basically filled him in. To enhance the look, I usually supplemented it with a piece of muslin or a 2' by 3' piece of showcard off to the side, throwing a bit of pale gold on it from a tweenie or inkie."

An existing construction site on the 27th floor of a Manhattan high-rise served as a backdrop for scenes of Trump's crew at work. The glass in the skyscraper's wall-sized windows had some two stops' worth of ND filtration, which proved beneficial when Quinn shot daylight interiors on Kodak's EXR 5293 200 ASA stock. Since the "set" was on the tower's southern side, any views of neighboring buildings appeared in the sunlight's shadow. But this filtration did cause Quinn some grief during night interior setups, because the inside appeared to be two stops underexposed when compared to the luminous metropolitan panorama beyond the panes. Merely pushing the Vision 500 on these shots was inadequate compensation; Quinn had to shoot with a wide-open aperture, while adding inconspicuous sources to the site's ceiling-hung

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Toiling in the wee hours one night, Johnny hears some noise upstairs in the building. When he investigates the commotion, he discovers Trump engaging in rough sex with a muscular black man: both figures are brightened by a golden glow. Notes Quinn, "For that scene we bounced light [from tweenies] into some muslin on the ground — coved muslin just out of frame — and hid the sources from camera to create a bit of a glow on the actors. The exposure of the buildings outside wasn't enough to separate them, so I put the smallest amount of fill light [on both men] so they didn't disappear on their shadow side. "

Quinn recently concluded photography on two new pictures: Carl Franklin's *One True Thing,* which stars Meryl Streep and Renee Zellweger, and *This is My Father,* a tragic love story set in 1930s Ireland, directed by Quinn's brother Paul and starring his other brother, Aidan.

At press time, 2by4 *was still seeking a distribution deal.*

— A. Thompson

TwentyFourSeven (Great Britain)
Director: Shane Meadows
Cinematographer: Ashley Rowe, BSC

Director Shane Meadows' debut feature opens with glistening black-and-white images of the British countryside. Every leaf and blade of grass hovers within in a wide range of grays, while the sky sweeps overhead in its own particular shade. These introductory images create a melancholy ambience that is somehow leavened by a trace of optimism.

TwentyFourSeven tells the story of Alan Darcy (Bob Hoskins), a paunchy but kindhearted resident of a downtrodden British town who decides to resurrect a boxing club that provided him with a safe haven during his wayward youth. Saddened by the aimless hostilities he observes

between the town's various gangs of boys, Darcy is determined to offer them a valuable lesson in self-realization and comradeship.

Moody and quite beautiful, *TwentyFourSeven* required a concerted effort on the part of Meadows, whose award-winning short film *Where's the Money Ronnie?* won the prestigious Channel One/NFT short film competition, and cinematographer Ashley Rowe, BSC, whose work on such features as *Second Best, Widow's Peak,* and *B. Monkey* (see *AC* Aug. '97) have made him a rising star on the British film scene.

Rowe, who cites Charles Laughton's *The Night of the Hunter* (photographed by Stanley Cortez, ASC) as a particular inspiration, says that he and Meadows worked hard to find the right monochrome stock to achieve the aesthetic they desired. "We thought about using Ilford stock," says Rowe, who notes that Ilford will convert its various black-and-white still photography stocks for 35mm filmmaking. "But the company only does the conversion by order, and we worried about getting stuck without enough stock. Fuji makes a black-and-white stock, but it's only available in Japan." Rowe finally selected Kodak's Plus-X 5231, which has an ASA of 80 in daylight. He says that while the stock is slow, Kodak's faster Double-X 5222 was too grainy for his taste. "Both Shane and I love old black-and-white movies, and we were determined to get crisp, clear images."

Rowe adds that the next hurdle was finding a way to do the entire film on black-and-white stock, including the black-and-white interpositive, interneg, and release print. The cinematographer had recently attended a screening of another film which had used black-and-white emulsions all the way through its postproduction, but noticed that the projected print kept moving in and out of focus. Rowe explains: "Projectors are set up for release

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1) Read Ron Garcia's Cinematographer's Tip about ambient lighting of landscapes with a flashlight on *Twin Peaks: Fire Walk With Me.*

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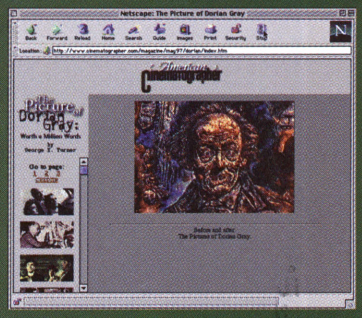

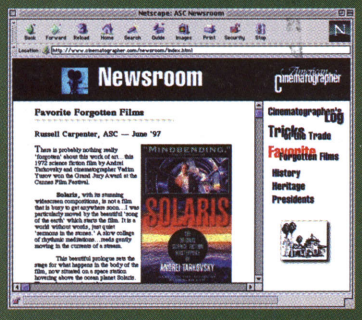

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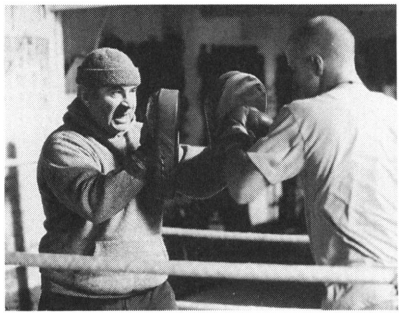
Sundance'98: A Prospector's Paradise



Above: Darcy (Bob Hoskins) spars with one of his young charges. Right: Director Shane Meadows checks his monitor under the watchful eye of Ashely Rowe, BSC (upper left), Hoskins (in knit cap) and other members of the cast and crew.

prints on color stock, which is thicker." The black-and-white print Rowe had seen had a thinner base, which caused it to flutter in the projector gate, throwing it out of true.

Rank Labs, where Rowe would have his footage processed, recommended using a color print stock as a way of avoiding this focus problem. Rowe, however, didn't want a color cast caused by the slightest change in developer temperature. "You have to grade in your own cast, such as sepia or blue, to control this," he says. In his research, though, Rowe found that if he used a bleach-bypass process, the color that is reduced the most is blue; thus, if he *had* to use color print stock, he could grade in blue for the color cast, and then use the bleach-bypass to get rid of the blue.

However, Rowe's dilemma was soon over: Kodak developed a new, thicker base for their black-and-white print stocks. "Black-and-white print stocks are usually done on a polyester base," explains Rowe, "but Kodak started using an estar base. It's thicker, so you don't have the focus problem. This meant I could stay true to black-and-white all the way through the project." The estar base, however, provided a problem of its own. "I found that it adds a slight bit of diffusion," he says. "If there had been a way to get the images sharper, I would have been happier."

Rowe had never shot an entire film in black-and-white, and initially harbored some reservations. "On the first day of shooting, however," he recalls, "we were out on a playing field. It was a dull overcast day that just looked awful. I know that if I'd shot it on color stock it would have looked absolutely terrible, but on black-and-white it looked terrific. It was this stark landscape with just a single tree, and the lads looked wonderful in silhouette."

For the scenes that take place in the gym where Darcy tries to establish his boxing club, Rowe and Meadows used an old barn that already had a boxing ring. "It was more than 50 years old," says Rowe.

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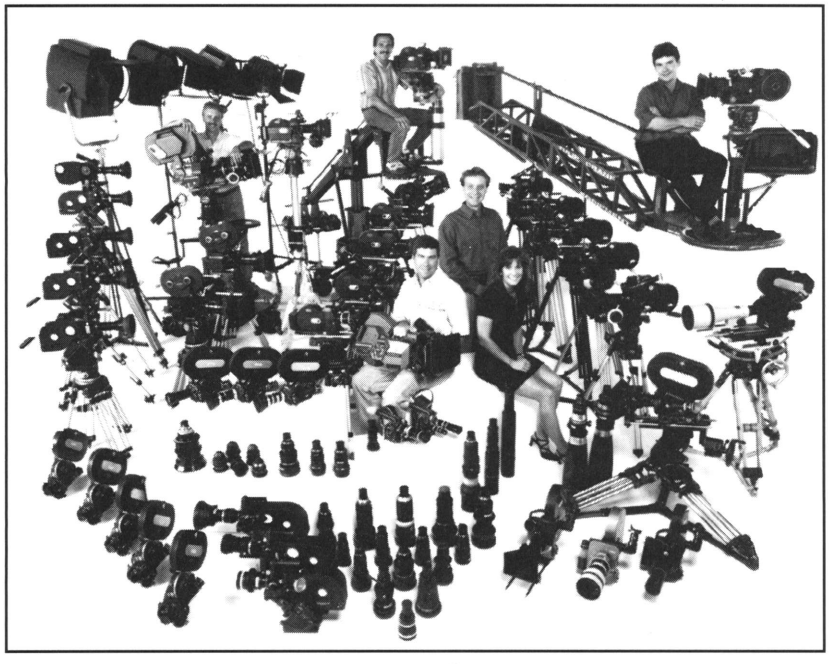

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"We took out the false roof over the ring so I could put lights up above, and I had a high window installed well overhead." For lighting, Rowe used a series of HMIs, and, with the exception of one scene, he "didn't use any direct light on faces. I tried to use source lighting to keep the atmosphere moody, and HMIs rendered better contrast than tungstens."

For the many scenes that took place in the ring, Rowe shot handheld. "The stuntmen would work out the routines with the actors," he explains, "and I'd just jump in the ring with the camera. I was using an Arriflex 535B with Zeiss lenses. The camera was quite heavy, but it stripped down easily, which I liked. The actors would go though the routines three or four times, and I'd follow them using different lenses."

Because *TwentyFourSeven* takes place as a flashback, Rowe had to distinguish the past from the present. One of the ways he did this was with filters. "The film starts in the present day, and the problem was that the actors looked quite young," he explains. "I needed to make them look older, so I used a green #11 Tiffen filter, which enhances the natural features of the face. It draws out lines and beards, and tends to make people look a bit older. For the flashback, I used a yellow #8 filter, which helps to correct contrast and makes the image look more like what your eye sees." Rowe also used some ND grads to darken the skies, but he didn't use any effects filters. For one flashback sequence showing Darcy as a child, Rowe shot in Super 16, which he later blew up to 35mm: "I used the 7222 and then force-processed it one stop to enhance the grain."

Rowe says that he enjoyed returning to the independence he'd had early in his career as a cinematographer making documentaries for the BBC. "I had missed that freedom to go into a scene and do it the way I wanted, shooting things as they happened in front of me."

October Films will release TwentyFourSeven *in theaters across the U.S. this month.* — H. Willis

The Well (Australia)
Director: Samantha Lang
Cinematographer: Mandy Walker

Sensuality, mystery and malevolence converge to intriguing effect in *The Well,* an unsettling thriller that earned enthusiastic applause from Sundance audiences. A first-rate feature debut by Australian director Samantha Lang, this story of manipulation benefits greatly from the moody photography of Aussie cinematographer Mandy Walker, who used filtration and bleach-bypass techniques to lend the film a cool, blue-gray cast. ➢

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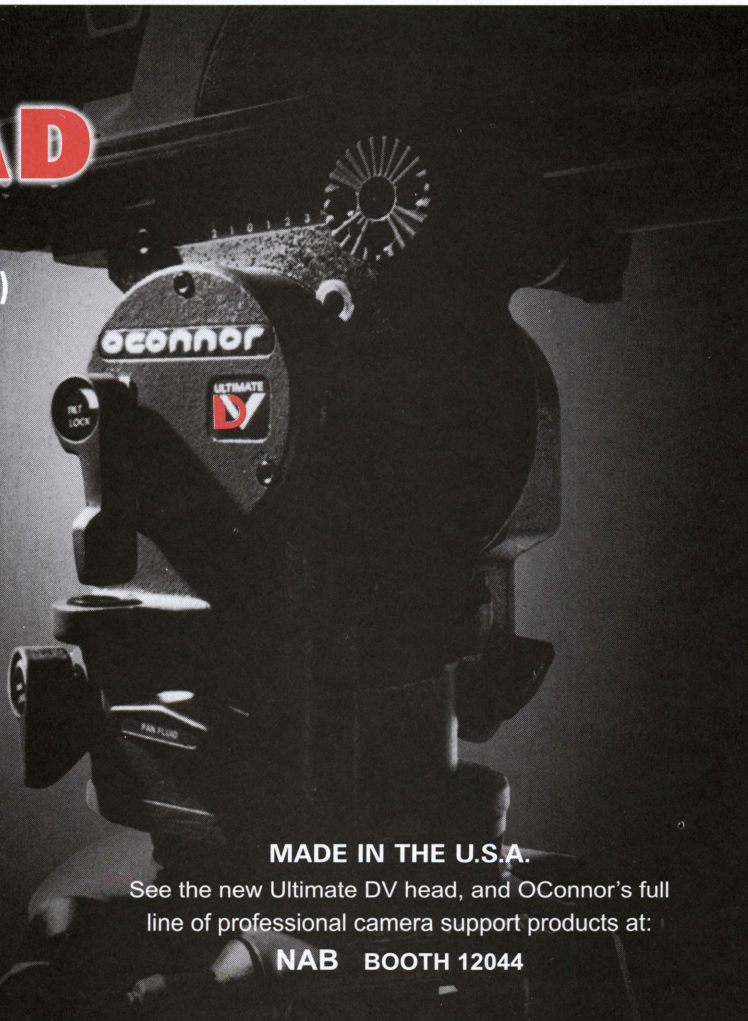

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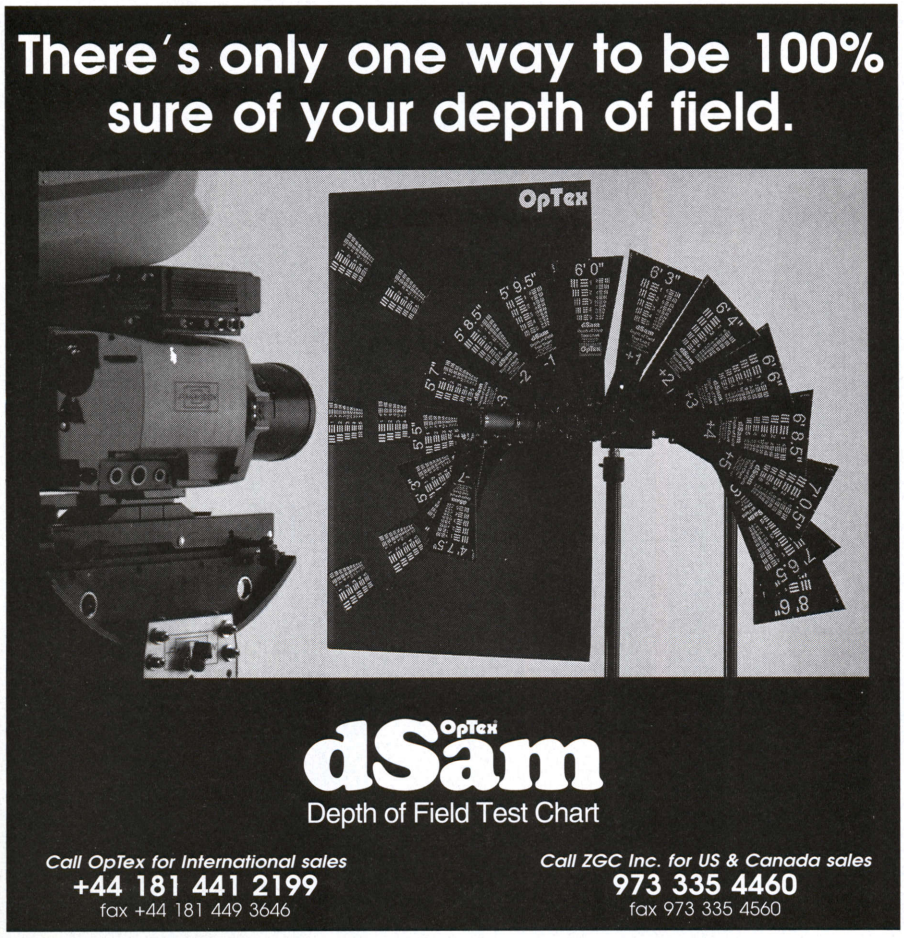

Sundance'98

Rife with Gothic overtones, the plot concerns Hester (Pamela Rabe), a lonely spinster who becomes overly attached to her live-in maid, Katherine (Miranda Otto), a coquettish, carrot-topped nymphet whose energetic presence stimulates her benefactor's suppressed longings. Isolated from the rest of the world on a remote farm, the pair's erotically-charged *pas de deux* intensifies as they care for Hester's ailing father. When he dies, the older woman cashes out her inheritance, selling off everything but a small cottage on the property. Suddenly flush with funds, Hester begins happily spending every free penny on her gamine-like boarder. Late one night, however, the pair's blissful, co-dependent dream world is shattered when Katherine accidentally kills a man while driving Hester's truck on a deserted road. The women cover up the crime by burying the corpse in a well next to the cottage, but the incident and its aftermath create dangerous cracks in the relationship's already-unstable foundation; the result is a chilling power exchange that calls to mind Joseph Losey's 1963 suspense classic *The Servant.*

An ardent admirer of directors Ingmar Bergman, Luis Buñuel, Federico Fellini, Roman Polanski and Alan Resnais, Lang says that she was drawn to the film's source material, a novel by Australian writer Elizabeth Jolley, because it presented her with a rich abundance of visual and thematic opportunities. She offers, "When I read Elizabeth Jolley's book, I found the two female characters and their relationship fascinating. At times they're like mother and daughter, at times they're like adolescent schoolgirls and at other times they're almost like lovers. The novel was visually evocative, and I also liked its sense of ambiguity. Film is often quite a linear form of storytelling, and I thought it would be interesting to try to create an ambiguous mood."

Lang grew up in a movie-mad environment: her stepfather had attended film school in England, and her mother had worked as a set dresser on films. At a young age, she began watching films with an analytical eye, and cultivated an interest in still photography, which she later studied at the Sydney University of Technology. She then attended the Prague Film School, after which she wrote, produced and directed the short film *Malady*. Lang was subsequently accepted into the Director's Course at the Australian Film, Television and Radio School, where she wrote and directed the aptly named short drama *Audacious,* which won the 1995 Dendy Award for Short Fiction at the Sydney Film Festival.

It was over drinks at a dinner party that Lang met Mandy Walker, who had already compiled some impressive credits as cinematographer of the features *Return Home, Eight Ball, Life* (which earned a Best Cinematography nomination at the 1997 Berlin Film Festival) and *Love Serenade* (which won the Camera d'Or at the 1996 Cannes Film Festival). Walker's resume also includes the documentaries *As the Mirror Burns* (which received a 1990 Best Cinematography nomination from the Australian Film Institute) and *Parklands* (winner of a 1996 AFI Award for Best Non-Feature Cinematography).

When *The Well* became a "go" project, Lang contacted Walker, and the two soon found that they were on the same aesthetic wavelength. Says Walker, "A lot of our influences for the film came from still photography, because we wanted to compose our frames in a way that would allow scenes to play out without too many cuts. The photographers whose work we were most interested in were Anton Corbijn and an Australian named Bill Henson. All of the photos we looked at were black-and-white. When I first read

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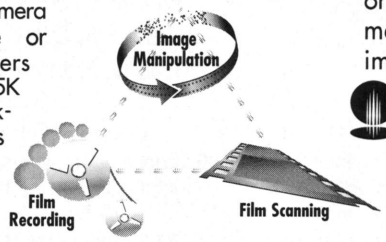

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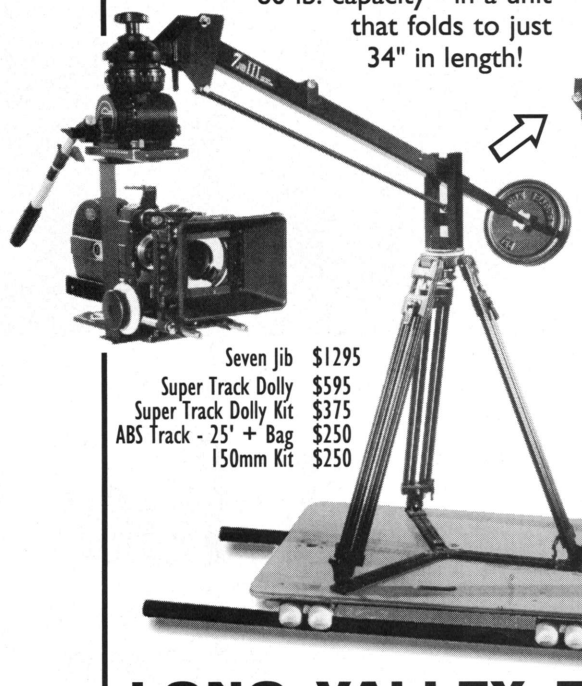

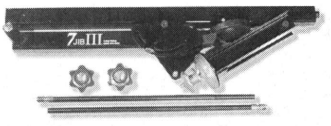

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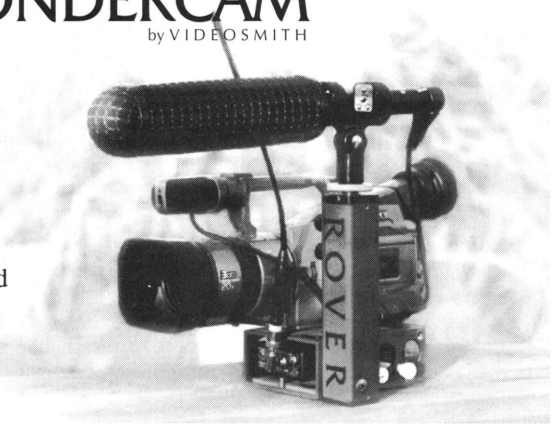

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the script I saw it as a black-and-white film, but Sam wanted specific colors to emerge and have meaning, such as yellow and red. We chose to go with an almost monotonal blue/gray look so that certain colors would jump right off the screen. Sam and I wanted to create this other-worldly feel, because the film was a psychological thriller involving these two women who were alone most of the time. We wanted menacing landscapes, as they weren't meant to be in a comfortable environment."

Lang adds, "One of the first things I thought when I read the book was that we'd have to find exactly the right landscapes. One of my influences in that regard was Bergman's film *The Silence. The Well* was originally set in the Wheat Belt of Western Australia, but I didn't want to show the Australian landscape in the usual clichéd way, with blue sky and red earth. I also didn't feel that a woman like Hester would really live in a place like that."

The filmmakers wound up shooting most of the film on the treeless plains of the Monaro in New South Wales. Notes Lang, "In Australia the light is often very contrasty, and if you're shooting on location there it can be a bit difficult to produce images that have a sense of mood and mystery about them. Bill Henson's photographs manage to do that, though, and Mandy and I talked about wanting to achieve that kind of look with the film."

To attain the film's stark and foreboding ambience, Walker shot the entire film on Eastman Kodak's 5248 with no 85 correction. To enhance the blue look for interiors, she also added a mixture of 80A and 80B filters. "I also used Tiffen Soft/FX filters because we shot with Panavision equipment, and neither of us wanted the film to look too sharp; we wanted it to be a bit more painterly. I shot most of the film with a grade 2 or 3 Soft/FX filter, and those are really quite heavy. As far as

the lighting was concerned, we used HMIs nearly all the time." In the timing stage, a bleach-bypass process was applied to add more contrast.

Walker notes that the film's relatively low budget ($1.2 million U.S.) led her to light a good portion of it with Kino Flos and China balls as key lights. Night exteriors were often illuminated with just one source, a 16K HMI balloon. The cinematographer says that her lighting and camera strategies changed subtly as the story approached its climax: "We hardly lit any of the exteriors, and the film becomes darker and darker as the women's relationship begins to deteriorate. When they first arrive at the cottage, you can always see where they are, and the environment is quite comfortable. But as the story progresses, the light starts to go and what little remains is all focused on the characters. We wanted the hominess and familiarity of the cottage to recede."

To further convey the increasingly shaky status of the situation, Walker shot the film's climactic moments handheld. "I had an operator for the latter part of the shoot," she says. "I would grab the second camera and use a long lens to sort of pick off little details. We wanted to get as much coverage as we could."

Lang credits the contributions of Walker and other key crew members for helping her to create a memorable and cinematically satisfying motion picture. "On any film, you're collaborating with a lot of people, and the reason you're collaborating with them is because they can do things that you can't — and do them a lot better! Those people therefore bring more richness and texture to the film. The director's job is to make the final decisions."

At press time, The Well *was still seeking U.S. distribution.*

— S. Pizzello ■

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CamerImage Salutes Cinematography

The most recent staging of the growing Polish festival offered a diverse program, including a heartfelt tribute to Vilmos Zsigmond, ASC.

by Bob Fisher

"It's hard to beat the charm of Eastern Europe," says Vilmos Zsigmond, ASC, shortly after returning from CamerImage '97, the International Festival of the Art of Cinematography held annually in Torun, Poland. Zsigmond received the festival's Lifetime Achievement Award, following in the footsteps of Sven Nykvist, ASC; Witold Sobocinski, Vittorio Storaro, ASC, AIC; Conrad Hall, ASC and Haskell Wexler, ASC. "I'm honored to join a list of artists who have created such extraordinary work," Zsigmond submits. "CamerImage is becoming a distinguished festival."

Seven of Zsigmond's films were featured in a retrospective compiled by Michael Friend, archivist for the Academy of Motion Picture Arts & Sciences: *Close Encounters of the Third Kind, Heaven's Gate, McCabe and Mrs. Miller, The Two Jakes, Deliverance, The River* and the HBO telefilm *Stalin.*

The films were shown after midnight, and some ran well into the wee hours of the morning. "The hour didn't matter," Zsigmond testifies, noting that the festival's key theater — a 1,000-plus-seat auditorium on the campus of Nicolaus Copernicus University — was always jam-packed. "There were people standing around the edges of the room and sitting on the steps at four o'clock in the morning. They were wonderful, not

like the rude crowds you see at some other festivals. They never booed and no one left early. They applauded for every film, including a few bad ones in the general screenings."

Torun is an unconventional place to conduct a film festival; the city is a 2 ½-hour drive — and a longer train ride — from the closest international airport, in Warsaw. In addition, the festival is staged in winter (late November through early December); there are no luxurious restaurants or hotels; and the participation of celebrities is relatively rare, although two screen luminaries attended this year's fest: French star Sophie Marceau (in support of her film *Firelight,* directed by William Nicholson and shot by Nic Morris) and British actor Jeremy Irons (the star of *Chinese Box,* directed by Wayne Wang, photographed by Vilko Filac, and featured in the cinematography competition).

The 1997 international jury was led by Polish-born director Agnieszka Holland (*Europa, Europa*; *Washington Square*) and also included film critic Peter Cargin and cinematographers Jerzy Zielinski, Edward Klosinski, Victor Kemper, ASC; Jack Green, ASC; Dick Pope, BSC and Eduardo Serra, AFC. Also in attendance were Ivan Passer (the director of *Stalin),* directors of photography Mike Southon, BSC (the president of the British Society of Cinematographers); Walter Lassally, BSC; Piotr Sobocinski and lighting equipment innovator Dedo Weigert.

The city of Torun was founded in 1233 by the Teutonic Knights as a bastion on the frontier of Western civilization. A 700-year-old wall stands near the center of the city, where one can find the university named after the town's most famous citizen, Copernicus (who lived from 1473-1543), the father of modern astronomy. The area offers a few other architectural relics from medieval times, including a magnificent church. There is also a museum dedicated to preserving the memory

Top: (From left) Vittorio Storaro, Pawel Edelman — who earned the Bronze Frog for *Kroniki Domowe* (*The Family Events*)— and Lifetime Achievement Award honoree Vilmos Zsigmond at the Cinematographer's Ball. Middle: Alex Thompson (left) receives an award for *Hamlet* from Tadeusz Scibor-Rylski, the president of the State Committee of Polish Cinematography. Below: Director of photography Eduardo Serra receiving the Silver Frog for *Jude*.

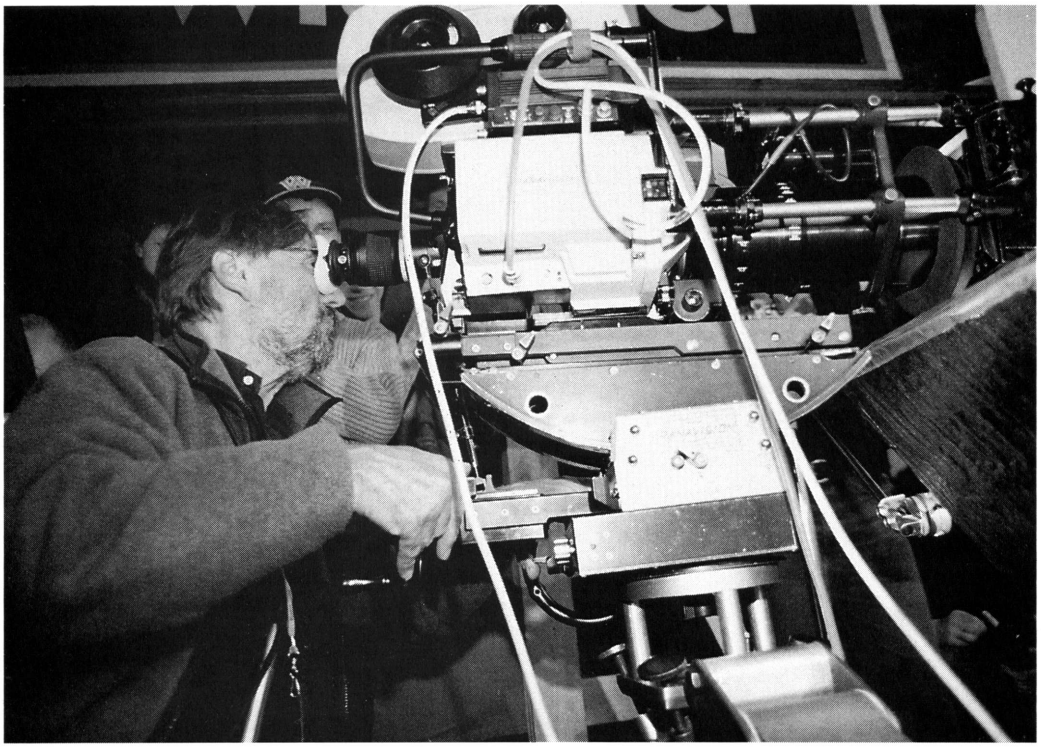
Photos courtesy of CamerImage.

CamerImage Salutes Cinematography

Opposite page: British Society of Cinematographers president Mike Southon addresses an audience during his workshop presentation on camera movement and dealing with actors.

of Copernicus and his scientific achievements.

Torun encompasses a population of some 210,000 citizens, including about 15,000 students. After the communist government was swept out of power, some locals formed The Tumult Foundation for the purpose of bringing art and commerce to Torun, which they felt had stagnated culturally and economically.



Above: Vilmos Zsigmond takes a turn at the lens during one of the many CamerImage workshops.

The group decided that a film festival could be an important step toward achieving their goals. Foundation member Marek Zydowicz visited many festivals in Europe before he recommended making cinematography the centerpiece of Torun's gala. "There were no other festivals dedicated to this important visual art," said Zydowicz. "We decided to organize a festival that would give cinematographers the recognition they deserve. We also envisioned it becoming a forum where cinematographers and students from around the world could meet and discuss their art."

Zydowicz has been the CamerImage festival director since its inception in 1993. Films can be nominated for the main festival competition by cinematography associations, the directors of other festivals and film critics. [*Editor's note: The ASC, by policy, does not make festival nominations.*] Typically, 40 to 50 films are nominated, and 10 to 15 are chosen by the foundation as finalists. One significant problem, however, is that some U.S. distributors won't provide prints because they are concerned about piracy in Poland.

Zydowicz insisted that the issue is an old concern left over from the days of communist rule. "Poland has a great tradition for filmmaking," he said. "The people love movies. Already, there are exhibitors looking for places to build cinemas. Our sponsors include the Polish state radio and television networks. We can open the door to this market."

A more pragmatic Zsigmond observes, "The truth is that most cinematographers don't have the clout to persuade distributors to make prints available. If this was Sundance or a festival for actors or directors, I don't think they'd have this problem."

Zsigmond lauded Friend and the Academy for tracking down and providing good quality prints, and for their support in screening them at the festival.

The main prizes in the festival's cinematography competition are gold, silver and bronze Frog statuettes. The Frogs are symbolic of a local fairy tale which parallels the Western fable of the Pied Piper, who rid a town of an infestation of mice by luring them away with music. In Torun, the mythical marauders were frogs.

This year, the jury awarded the Golden Frog to Rogier Stoffers for *Character*, a period film set in Holland during the 1920s. The story is about a young man's struggle with a powerful father. The Silver Frog was presented to Ron Fortunato for *Nil By Mouth* (see Points East, *AC* Nov. '97), an intense story about a dysfunctional English family which marks the writing/directing debut of actor Gary Oldman. The Bronze Frog went to Pawel Edelman for *Family Tales*, a Polish film which focuses on a man's remembrances of his childhood and adolescence.

Explaining the jury's top choice, Jerzy Zielinski offers, "He [Stoffers] really understood what he wanted to do and how to support the story with cinematography. The lighting was very interesting, but more importantly, it supported the story. It wasn't a series of pretty pictures. All of the [cinematic] elements came together: lighting, camera movement and composition. There's a plot with characters and depth that is enhanced by the cinematography."

Ten other films vied for honors, including *Chinese Box*, *The Eel* (Shigeru Komatsubara, Japan), *Hamlet* (Alex Thompson, BSC;

United Kingdom), *The House* (Sharunas Bartas, France/Portugal/ Lithuania), *Marvin's Room* (Piotr Sobocinski, U.S.), *Mother and Son* (Aleksiej Fiodorov, Russia/ Germany), *Jerusalem* (Jorgen Persson, Sweden), *Nenette et Boni* (Agnes Godard, AFC; France), *She's So Lovely* (Thierry Arbogast, AFC; U.S.), and *Whitman Boys* (Tibor Mathe, Hungary/France/ Poland).

"I'm proud of the work done by the jury," says Victor Kemper. "We took it very seriously. There were no politics. It was about the art and craft of lighting. Art is subjective, so there were different opinions, but there was no doubt about the winning film by Rogier Stoffers. It was exquisite lighting that amplified a character study about the relationship between a father and son. We realized it was unanimous before we voted."

Jack Green observes that films chosen for the competition generally had a heavy, European film noir influence. "There were some really terrific films," he says, citing *Character* and *Hamlet* in particular. "I think this will become a world-class film festival as cinematographers from more countries participate."

Several special awards were presented during the event. Alex Thompson was congratulated for *Hamlet* by Tadeusz Scibor-Rylski, the President of the State Committee of Polish Cinematography; Fortunato's *Nil By Mouth* was selected by the students as their favorite film; and Filac was the audience's favorite for *Chinese Box*. Honorary Golden Frog awards were presented to Prof. Jerzy Mierzejewski, dean of the cinematography department at the state film school in Lodz, and Bobby Arnold, president of Arriflex Corporation, for his immense contribution to the development of film technique. In addition, a gold medal was awarded to Friend for his contributions to the success of the festival, and special prizes were presented to Vittorio Storaro and director Bernardo Bertolucci for their longtime collaboration.

To further honor the latter duo, the festival presented a special screening of *Strageglia del Ragna (The Spider's Stratagem)*, the 1968 film which first paired these two cinematic titans. Storaro introduced the film and answered questions. He also explained Univision, a system he used during the production of *Last Tango in Paris* to compose images for

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both cinema and television release in a uniform 2:1 aspect ratio. The goal, he said, is to ensure the integrity of the cinematographer's original composition when movies are seen on widescreen television.

Bertolucci's scheduled appearance was canceled because of an illness, but he spoke live via satellite and was obviously moved by the audience's warm reception.

More than 300 students attended the festival and participated in workshops and seminars conducted by a world-class faculty of cinematographers. "I loved the student participation," says Jack Green. "There was a lot of interaction. They asked lots of questions about lighting techniques and style. I told them my intent is to have no recognizable style and that cinematography should blend with the story. Their knowledge of films from around the world was phenomenal."

Jerzy Zielinski's appearance was inspirational for the students from Lodz. "The student competition was great," he submits. "It was a terrific opportunity for young filmmakers to show their work to audiences and to have it judged by working cinematographers from around the world. I only hope they can get more participation from other countries. The students were mainly from Europe, with some from Australia."

Zydowicz said that about 100 students came from outside of Poland, and most of them were housed with local families. Some 70 films schools submitted short films for the student competition. In all, 34 films from 15 schools were selected for the competition. Judging was done by the festival's all-star jury. "I met film students from Finland, Holland and Australia," says Kemper. "The films from Lodz were consistently good. Overall, I think that some 70 of the student films were better than what you would expect in this type of competition."

Arriflex president Bobby Arnold (right) receives the Special Award Golden Frog for his company's contributions to the development of film technology and techniques.

The student Golden Tadpole award winner was Marek Wieser from Lodz for *Liver and Potatoes.* Marek Gajczak from Lodz won the Silver Tadpole award for *A Way for Moravia.* Manuel Mack from Deutsche Film and Fernsehen Akademie Berlin won the Bronze Tadpole award for *A Summer's Day.*

An added special feature at CamerImage '97 was the daily

International Photographers Guild screenings of films shot by ASC members Robert Primes, Donald M. Morgan and George Spiro Dibie and Constantine Makris, as well as James Chressanthis, Stephen Lighthill and Brian Reynolds. "This was an outreach program, a gift from the Guild to the film students in Eastern Europe," notes Dibie, national president of the Local 600 union chapter. "We hope this will inspire them to use television as a platform for creative expression."

Zsigmond attended every screening of his retrospective, telling stories about what happened behind the scenes and answering questions. "They asked the same questions that students ask [in the U.S.]," he said. "How did I get started? How do I work with directors?"

Zsigmond was born and raised in Szeged, Hungary. When he was 17, he read *The Art of Light,* written by Eugene Dulovits. The book sparked his fascination with photography, but after completing secondary school, Zsigmond was required to work in a factory, because his parents were considered bourgeois.

It took a combination of determination, fate and courage for Zsigmond to make his mark as a cinematographer. He saved money to buy a camera, and organized a photography club at the factory. The authorities rewarded Zsigmond by sending him to the state film school in Budapest. He deplored living under communism, but said that he learned a great truth at film school which has permeated his work. "They taught us that a movie is only art if it has something to say," he said. "It should be more than entertainment. It should have some value."

In October of 1956, Zsigmond was continuing his education as an apprentice at the state's film studio when a spontaneous uprising rocked Budapest. For a few days, it seemed likely that the populace would succeed in installing a more democ-

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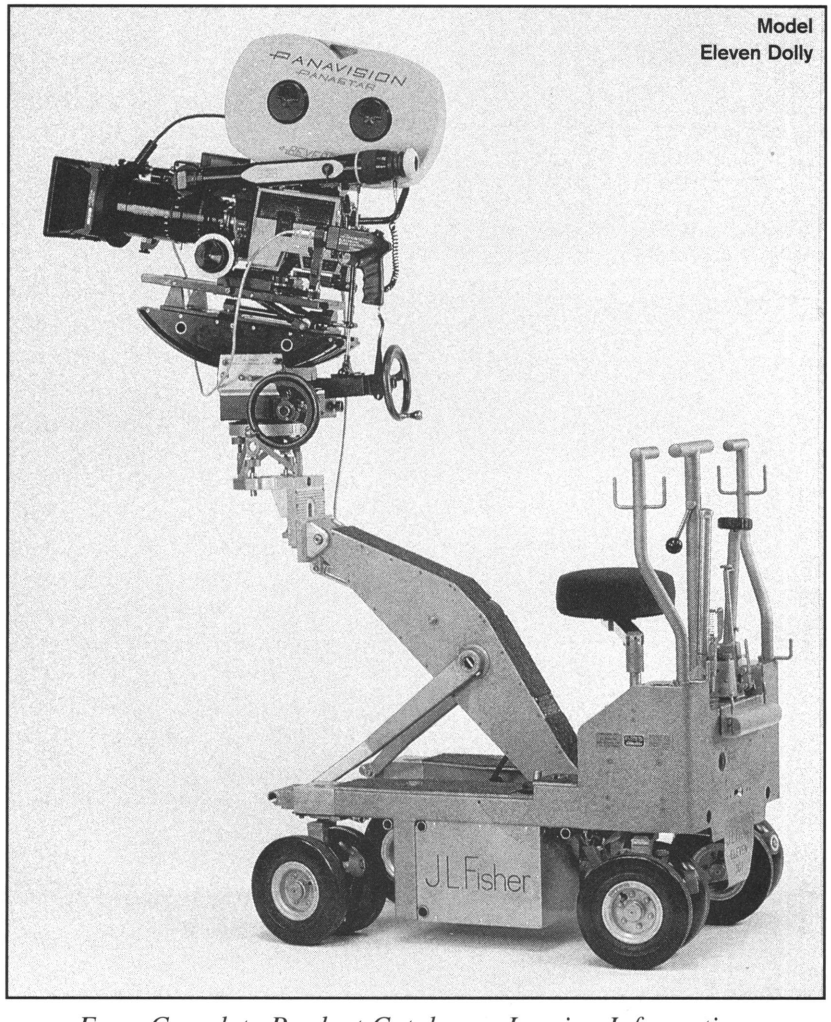

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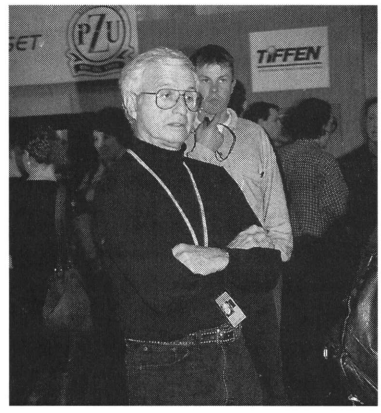

Victor Kemper talks to students in the Festival center.

ratic government. Zsigmond and Laszlo Kovacs, ASC, who was still a student, used a 35mm camera and film belonging to the school to record the historic events happening on the streets.

The tide quickly turned when Russian tanks and troops poured into the city and crushed the revolt. Zsigmond and Kovacs captured the entire siege on film, and then took it upon themselves to carry some 12,000 feet of film through the forest and defect to Austria — a dangerous and tense journey, to say the least.

The duo's daring escape eventually brought them to Hollywood, where Zsigmond shot his first mainstream feature, *The Sadist,* in 1963. He has subsequently compiled more than 50 narrative film credits, including *Close Encounters,* which earned him an Oscar for cinematography; *The River* and *The Deer Hunter,* which received Academy nominations; and *Stalin,* which garnered an Emmy. "I felt it was important for the audience to see *Stalin,* because he had such a tremendous influence on their lives, mainly before the students were born," the cinematographer said. "It's an English-language film, but they didn't need to know the words. The images tell the story."

While introducing Zsigmond at one event, Zydowicz compared the cinematographer to the classic master painters whose work he has studied. He told the cameraman, "Everyone has some talent, but few can discover and use it to give something great to others. You are one of those lucky people."

Zydowicz freely admitted that CamerImage still faces considerable hurdles as it approaches its sixth year. During its first three years, the festival was the official meeting place for IMAGO, a confederation of 17 European cinematography organizations. Now, IMAGO has formed an alliance with the new MadridImagen festival in Spain.

CamerImage is dependent on the largest of government and corporate sponsors, including Samsung Electronics, Eastman Kodak Company, Arriflex, Dedo Weigert Film, Panther, Deluxe Labs, Moviecam, Tiffen, Panavision and others. That reliance probably won't change in the near future, since large numbers of celebrities and tourists aren't likely to decide that it's hip to flock to Torun to attend a winter cinematography festival.

Still, there's something special about CamerImage: the generosity of the people, the enthusiasm of the students, the instant camaraderie of the cinematographers who meet in Torun, the purity of the competition, and the fact that the cinematographers are on center stage.

"You could see how touched Vilmos was by the reception he got," concludes Victor Kemper. "He deserves that recognition. He has made enormous contributions to advancing the art of filmmaking. I was very glad that I was there to witness the affection that the students have for him, and the admiration of the audience. That alone was worth the trip." ■

Contact information for the Torun Film Festival: Tumult Foundation, Festival Office, Rynek Nowomiejski 28, 87-100 Torun, Poland, tel. (+48 56) 248 79 62 100 19, fax (+48 56) 275 95.

On the Spot

Flying Through the Toll Booth

by Mary Hardesty

It's not every day you hear nice things about the New York Transit Authority, but you will when a new spot featuring Lockheed Martin's E-Z Pass toll booth system starts to air this spring. That's because the star of the 30-second ad, "Rush Hour," is an F-16 fighter jet soaring through a toll stop at the end of a tunnel crowded with trucks and cars.

The ad, which was developed to help create wider awareness of Lockheed Martin's diverse technological capabilities, suggests that the only way you could pass through a toll stop any faster than with the Lockheed-designed E-Z pass would be to climb into the cockpit of an F-16. "When approaching a shoot like this, the most important thing to do is to make the model plane look real by paying attention to details in the model, the path of the plane and the type of light," explains director of photography Paul Cameron.

The 2nd Street tunnel in downtown Los Angeles was selected because it was wide enough to give a real F-16 a 4' error cushion beyond either wing tip. A real F-16 is 47' long with a wingspan of over 32'. Under the direction of visual effects supervisor Mark Kolpack, PERFX built a ⅛-scale replica of the tunnel's interior, as well as a 1/18-scale replica of the tunnel's facade to match the ⅛-scale miniature F-16. The 6'-long miniature was realistically aged and weathered by modelmaker John Merritt, who also built a complete custom cockpit interior display, as well as authentic-looking running lights, wing flaps and tail flaps controlled by stepper motors.

It was then up to model and effects unit director of photography Chris Nibley to shoot the model and the ⅛-scale tunnel replica so they looked realistic. "The tunnel was 5' by 4' 2" and 40' long," notes Nibley, who made it look much longer by forcing the perspective and shooting at angles that could repeat and hook up together in post, thus creating an extended view of the tunnel. "First, we passed the camera through the tunnel, and then we did a setup of the plane model in front of a 60'-wide greenscreen to match the motion control we shot of the replica tunnel. For just one shot of the plane we needed to do as many as six passes: a beauty shot, a rotating light shot, a wing light shot, a bottom light source and then a greenscreen shot. The post guys then mixed all of those together for the perfect balance."

Lighting was the key to matching the live-action footage. "We found that the practical lights on the model were not very bright because they were so tiny, so we always had to shoot a separate plate for that," explains Nibley. "Also, we found that by adding a cover lens and gels to small projection lamps, we could make the miniature lights match the yellow/green color of the real tunnel's tungsten lighting. We also filled out the sequence with detailed miniature cars complete with operating headlights and taillights.

Additionally, Nibley and head gaffer Bob Fisher came up with a lighting plan to perfectly match the live-action footage of the plane passing through the tunnel. "We built a six-sided drum mirror and put a light on it as we banked and rolled the model plane," Nibley recalls. "Although the model never actually moved forward, it looked as if the lights were passing across the model. I used a digital disc recorder to line up the live-action plates with the motion-control rig, which Nic Nickelson operated. The camera was on a small tower rig that allowed it to move in any direction. We placed the camera out on an arm to pass over the models just like an F-16."

Since each plane POV pass can take hours to rig — and as many as eight passes of a shot were often necessary

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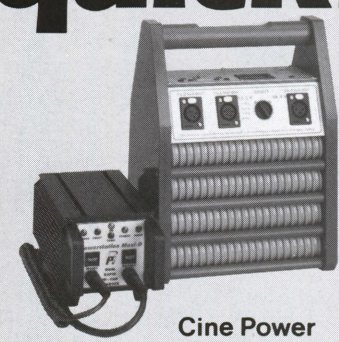
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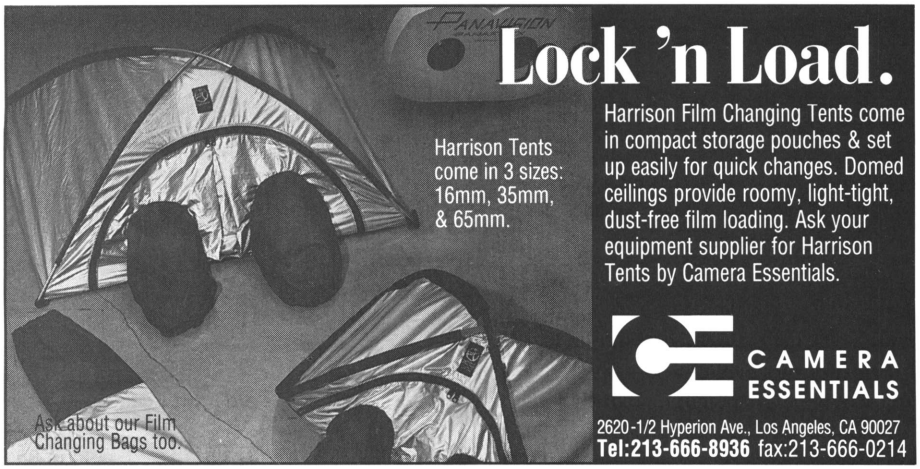
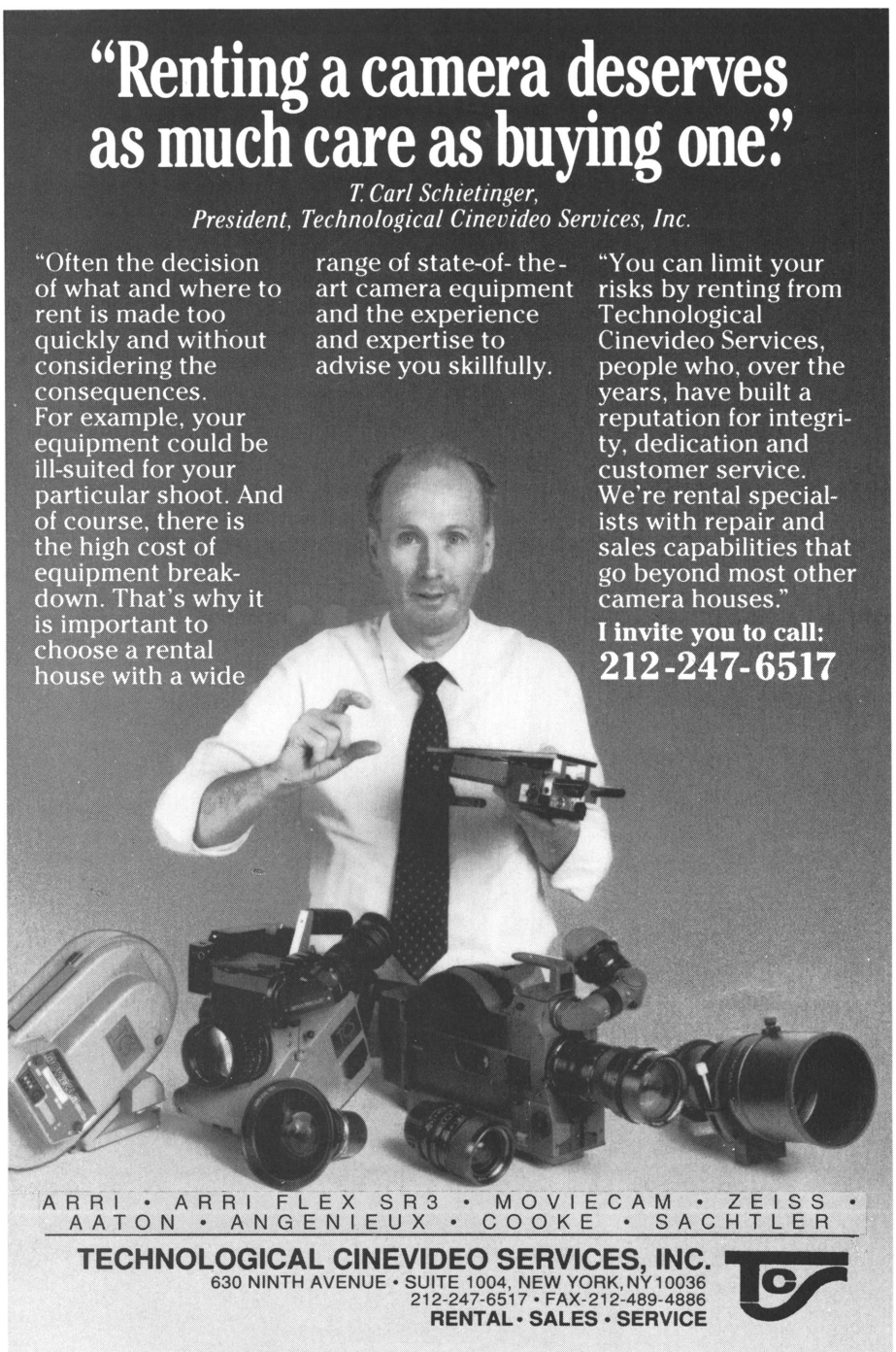




— the model unit shot for 11 days on Sony's L.A. soundstages. Nibley used his own Fries Mitchell camera with Zeiss prime close-focus lenses and a Century 2000 Mark II snorkel. Notes Nibley, "We used it to get the lens under the wing and also to make extremely close passes over the top of the model plane. The trick to making miniatures look real is to have a high-quality model and to get as close to it as possible. With the Century 2000, we were able to get within an inch of the model."

Nibley chose to record the spot on Eastman Kodak's Vision 500T 5279 stock. "The grain was fine enough for broadcast standards," states Nibley. "Also, if we had gone with a slower-speed film, it would have taken too long to shoot each pass."

For added credibility, Cameron used pyrotechnics to simulate traffic cones being blown away by the thundering F-16; he even dragged a life-size model of the plane's cockpit through the 2nd Street tunnel on a flatbed truck. "

For the live-action work, Cameron took the unconventional approach of using an 8mm Nikkor lens on an Arriflex camera body. "We used 79 stock for the live action because of the lack of light," says the cinematographer, who used Xenons to illuminate the live-action toll booth and tunnel sets and to simulate light bouncing off people and surfaces. "Phil Walker handled all of my heavy lighting demands. "We decided to hang a silk to cover one end of the tunnel and enhance the reflective light off the surface of the tunnel with the Xenons. The guys at PERFEX were able to cut the silk out and replace it with the New York skyline background shots I did with aerial photographer Steve Harris. They had to composite all of the car, model, background and interior tunnel plates together, and they did a terrific job of making all of those layers look real." ■

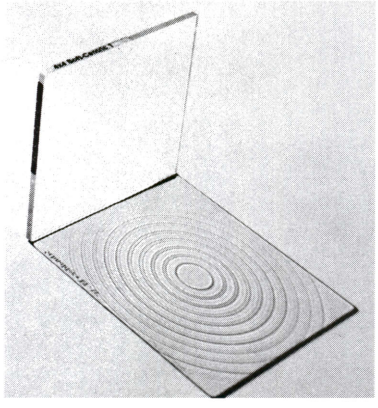
Credits
Spot: "Rush Hour"
Client: Lockheed Martin
Director of photography: Paul Cameron
Special effects unit director
of photography: Chris Nibley
Director: Peter Goldschmidt
Agency: DDB Needham/New York
Visual Effects: PERFX, Los Angeles, CA

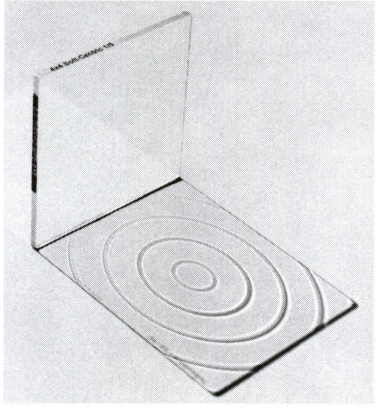
New Products

compiled by Andrew O. Thompson

Monochrome Soft-Centric Filters

Schneider Optics presents a series of mild diffusion filters that soften a scene without significantly affecting contrast, creating flare or making the subject seem out of focus. Developed with the help of cinematographer Roy





Wagner, ASC, Soft-Centric filters achieve their dramatic softening effects through a series of evenly-spaced concentric circles right in the glass.

"These filters are ideal for romantic close-ups," Wagner explains. "They're especially useful for smoothing out wrinkles and facial blemishes, and they're perfect for glamorous close-ups. Used creatively, they can help directors of photography enhance their unique visual 'look.'"

A standard set of Soft-Centric filters include strengths of ¼, ⅓, ½, 1 and 2, each with its own unique circular pattern. The stronger diffusions (1 and 2) contain tighter circular patterns, while the more subtle diffusions (¼, ⅓, ½) have circular patterns which are further apart. The Schneider Soft-Centric filters can be purchased individually or in sets and are available in three popular sizes: 4" x 4," 4" x 5.650," (Panavision size) and 6.6" x 6.6." All Schneider Soft-Centric filters feature crystal-clear, water-white optical glass, which is free from the greenish cast commonly found in other manufacturers' glass.

Schneider filters are available for professional television and motion-picture cameras in square, rectangular and round sizes. The full line includes a variety of options: clear, color-correction, color effects, neutral-density warming, UV-absorbing, enhancing, softening, diopters and split-field diopters, and the TRUE-POL polarizer.

Schneider Optics (516) 761-5000, fax (516) 761-5090, email: info@schneideroptics.com.

New Optex Accessories

OpTex announces availability of the Digilite 15, a small luminaire designed for use with camcorders, ENG cameras and digital still cameras. The pocket-sized kit comprises a 15W light, 2Ah 7.2V (nom) Ni-Cad battery pack and slow charger. Under continuous load, the battery should last for approximately 60 minutes before recharging. The light is fitted with an on/off switch, a dimpled reflector for a more even spread of light, and a diffuser. The battery pack weighs 320g and is fitted with a panel-mounted 2.5mm DC socket to accept the charger and a standard video accessory shoe, which can accept either the light or a microphone. For added convenience, the battery is supplied with velcro straps, enabling it to be fitted to the camera's hand strap or attached to a tripod, shoulder pod or belt.

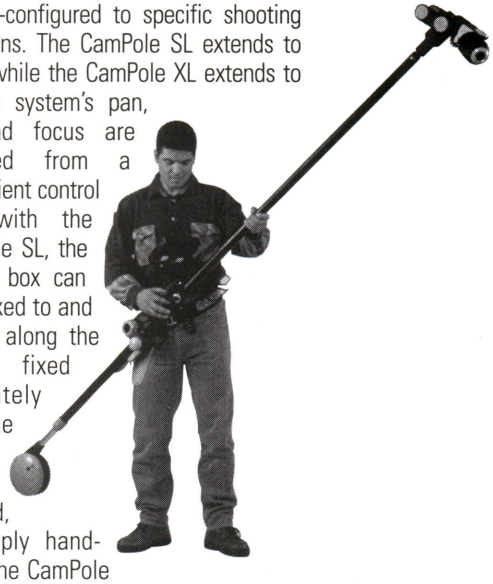
Optex has also introduced the Optical Lens Adapter, which will allow any ⅔" B4 mount ENG lens to be used on the Panasonic AJ-D2000 ⅓" camcorder. When used on a ⅔," 4 x 3 camera, a 20 x 8mm lens has a horizontal angle of view ranging from 57.5 to 3.2 degrees; when used on the AJ-D200, however, the same lens with have a range of 33.4 to 1.7degrees.

OpTex, 44 (0) 181-441-2199, fax 44 (0) 181-449-3646,email:info@ optex-int.com.

CamPole

CamPole is a new video camera system designed to extend the camera operator's reach. This system consists of a miniature three-chip CCD video camera integrated into a watertight housing, manipulated by quiet servo motors, and mounted on a series of interlocking carbon-fiber tubes. The system is available in either a body-mount version (CamPole SL), or a longer tripod-mount version (CamPole XL).

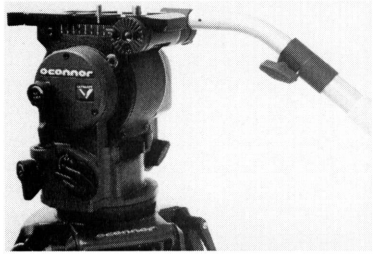
CamPole allows an operator to capture close-ups when it's difficult to approach the subject — as when shooting underwater, 20' in the air or into a tiger's cage. The tubing mounts together with a bayonet system and may be custom-configured to specific shooting situations. The CamPole SL extends to 15.5', while the CamPole XL extends to 22'.The system's pan, tilt and focus are adjusted from a convenient control box; with the CamPole SL, the control box can be affixed to and moved along the tubes, fixed separately to the hand-grip of a tripod, or simply hand-held. The CamPole XL control box is a separate unit. CamPole can also be hardwired,



depending on the application.

Viewing options include a video headset, an LCD monitor that attaches to the CamPole, or a standard video monitor. CamPole SL weighs just 22 lbs. and packs into two cases for transport or shipping. CamPole XL weighs 11 lbs. (camera head and receiver) plus 3 lbs. for each section of tubing, and packs into three cases.

Innovision Optics, (310) 394-5510, fax (310) 395-2941, www.innovision-optics.com.



Camcorder Fluid Heads

O'Connor Ultimate DV and DVS fluid heads are full-featured, compact and lightweight, weighing only 6.3 lbs. They are ideal for DVCam, DVCpro and other small-format 3-CCD camcorders. These heads come standard with a new Mini-European platform. The counterbalanced on these heads are infinitely adjustable, which enables "tuning" of the heads to precisely neutralize the camcorder's weight throughout the entire tilt range. The capacity of the DV head is 24 lbs. and the DVS head is 32 lbs., with 90-degree tilt in either direction and 360-degree pan.

O'Connor, (714) 979-3993, fax (714) 957-8138.

Non-Linear Editing Software

Vitec Multimedia introduces a non-linear, frame-accurate MPEG-2 editing software; this solution for cut-and-paste editing of MPEG-2 program files under Windows NT/WIN-95 platforms. Easy to use and featuring fast applications, MPEG-2 edits files before authoring a DVD, by removing MPEG-2 segments of a video program file without re-encoding the entire file. Any user of MPEG-2, for DVD and other purposes, only needs the ability to cut and paste sequences after encoding, as opposed to the old system of going back to the original analog and re-encoding.

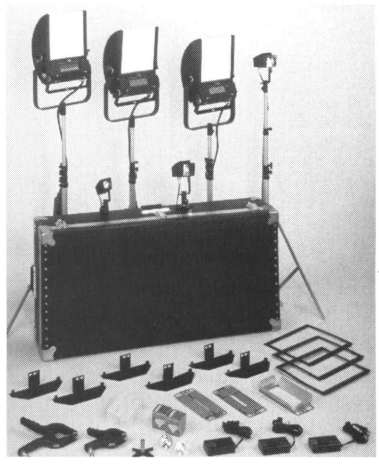
The company also offers the MCM (MPEG-Cut Machine v2) which includes a complete set of tools to record MPEG-1 and AVI digital video in real-time (with the RT5 TV board) and create interactive multimedia presentations. The unit represents a single-board integrated solution combining MPEG real-time encoding, frame-accurate editing and authoring software for producing Video CD 2.0 files and CD-ROMs directly from videotape or laserdisc. The new unit is delivered with the following: VITEC RT5-TV MPEG-1 and AVI real-time plug-and-play encoding board for Pentium133 and Windows '95; VideoWave from MGI (an AVI editing software with special effects PhotoSuite from MGI, a still-frame editor and organizer); Video Clip MPEG-1 editor for frame-accurate, non-destructive cutting and pasting of MPEG-1 and MPEG system files for Video CD 2.0; CeQuadrat Video Pack 4.0, user-friendly software for producing Video CD 2.0 Compatible CD-ROMs; Scala MM200, a multimedia authoring software for production of interactive CD-ROM presentation; and Archivist, a tool for organizing and classifying the multimedia environment on one's PC. Typical applications for the MPEG-Cut Machine include turnkey production of interactive corporate training and sales presentations, transfer of home videotapes to CD-ROM, and Web and Internet transmissions of video material and video library indexing.

Vitec, (408) 752-8483, fax (408) 752-8486, email: info@vitecmm.com.

Cool Lux Fixtures

Cool Lux introduces its Combo/Soft Kit, which provides professional cine and video photographers with a "soft" lighting package designed for easy mobility. The Combo Light was created to accept 300W, 500W, 750W or 1000W (double-ended) lamps. Because the light is indirect, bounced from the Softlight Hood, the fixture does not project any heat on the subject. The Combo Light can also be used as a direct flood for location or outdoor use.

The kit contains three Cool-Lux Combo Lights, complete with barn doors, easily attachable Softlight Hoods, diffusion accessories and 500W (double-ended) bulbs; also contained are two lightweight, AC/DC 250W Mini-Cools (each as powerful as a 650W Fresnel)



with four-way barn doors and dimmers for intensity control. Included for DC applications are a 12V 22W bulb, and a quick flip daylight filter assembly. For ENG requirements, the kit offers a free 12V 35W Micro-Lux. The kit's durable, heavy-duty case is injection-molded, weighs under 65 pounds complete with equipment, and measures 43" x 20" x 8."

Cool Lux also offers the Pan-El-Lite, a lighting system that allows users to "bend" light at will with neon-like effects. Utilizing electroluminescent technology, the Pan-El-Lite is made up of flexible, translucent material that is half the thickness of a credit card. Available in widths from ¼" to 44", these "light swatches" can be ordered in any length. Once the material is sized to fit the application, it is simply cut, fitted with the accessory components and fixed into place with velcro; it can also be stapled, nailed or glued. From 1" to 44" strips, its brightest continuity is 150'. To maintain that continuity at 1,500', for example, there must be a power supply every 150'. At full strength, its brightness remains steady for 1,000 hours, then loses 10 percent every 2,000 hours thereafter. Total life potential is estimated at 10,000 hours. Available in incremental inch widths of ¼, 1, 2, 4, 8, 12, 22 and 44, a complete Pan-El-Lite system sells for $1.80 per square inch. It comes complete with power supply, ballast, control panel, connectors and adapter.

Pana-Tek, (805) 482-4820, fax (805) 482-0736.

Effects Software

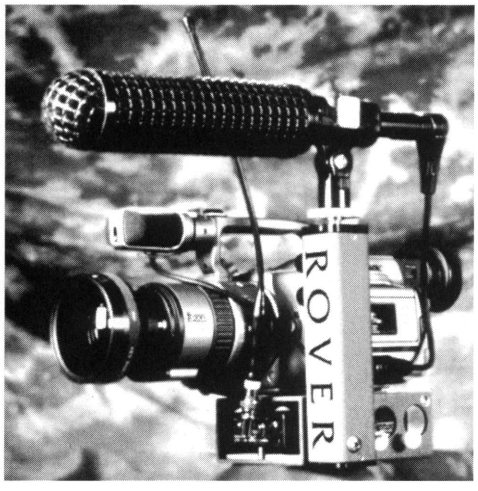
Hollywood FX Incorporated has released Hollywood FX 3.0 for the Macintosh; this software provides true broadcast-quality 3-D digital video

effects for non-linear editors and allows one to customize hundreds of effects through the path editor: stop an object, rotate it, stretch it and send it off in any direction. The program offers envelope control over object transparency, shadows, trails and more. Optimized coding with Conix OpenGL lends speed, and the software supports Adobe's After Effects and Premiere, Media 100, and Avid.

Synergy International, (801) 281-0237, fax (801) 281-0238, email: synery@synergy1.com.

Camcorder Support Unit

Videosmith and BeachTek introduce the RoverCamera Support System, a lightweight, all-metal pod designed to extend the audio capability of any small camcorder. The rig holds a radio mike receiver in a box beneath the camera, and an external microphone on its vertical handgrip. Rover will accept most radio mike systems. The receiver simply slides into the aluminum box and is firmly clamped into space with nylon screws. An external ambient microphone mounts securely to the vertical handgrip. Rover will also work with an external



dual XLR adapter mounted between the box and the camera.

The unit is precision-machined from aluminum stock. Fasteners are stainless steel. The rig is epoxy powder-coated for durability, and has an attractive dark-gray wrinkle finish. A bare Rover weighs just 20 ounces; when fully loaded with the rig, camera, mikes and cables, a complete package weighs about 7 pounds. Rover's box measures 1 ½" square by 7" tall. It has ¼-20 mounting

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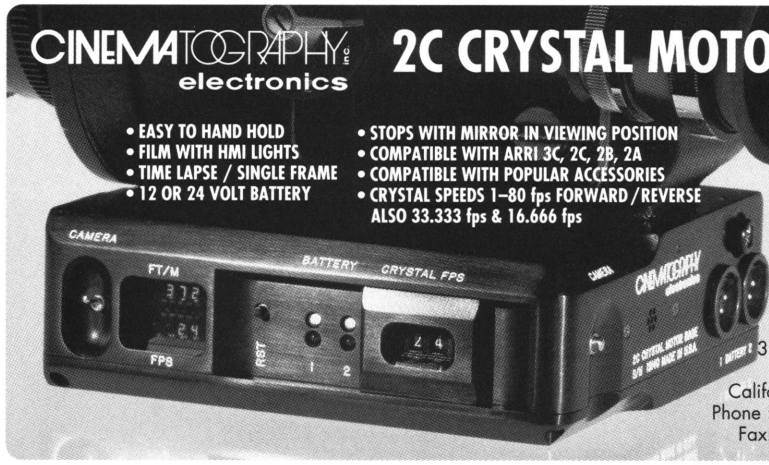

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35 MM REFLEX

The Fries model 435 is a new general purpose MOS production 35mm camera. With its optical printer compatible register pins, steadiness and 150 FPS speed. The 435 is ideally suited for special effects, commercials or any photography where a quality steady image is desired.

The 435 is a spinning mirror reflex camera with a 170 degree blanking shutter. The internal 30VDC motor runs the camera from 2 to 150 FPS forward and 2 to 50 FPS reverse, in one frame increments all crystal. The camera is equipped with take-up and supply torque motors.

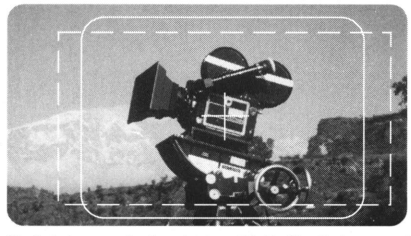
There are both 1000 ft. and 400 ft. displacement type magazines. A new feature is the light valve which allows the operator to direct all the light to the viewing system, or to the video assist, or combo which splits the light between both viewing and video assist.

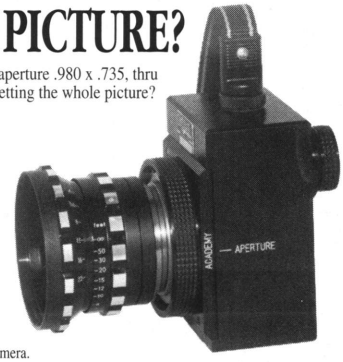
35 mm, Reflex Camera

WHY NOT SEE THE WHOLE PICTURE?

The new Fries Director's Viewfinder allows the director to view the full camera aperture .980 x .735, thru the same lenses that will be used on the camera when filming. Why aren't you getting the whole picture?

Ground Glass 1.85 & T.V. on Academy Center line shown





Film Clip: The finder has a set of register pins that will hold a film clip the same as the Fries camera.
Groundglasses: Interchangeable. The same groundglass as is used in the Fries 35R and 35R3 cameras.

Director's Viewfinder

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Milliframe Controller for 16-SR, 35-BL, Aaton

...and most of the TCS crystal motors above, has speeds to 159.999 and 1599.99 FPS, phase button; **$695** with footage counter, **$550** without, plus cable.

Other equipment: **Crystal plug-in for your Bolex EBM, EL and ESM $330; 59.94 crystal box for resolving Nagra tapes to Avid, $240. Speed checker, $169. 12 volt 7 ampere-hour battery belt with 6' cable, XLR, AC charger, $169. Crystal for Nagra, cassette, etc. $120-$135. Videoframe Controller, $165.**

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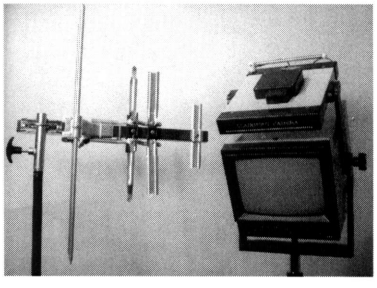
threads on both ends, and a standard camera mounting shoe on top. The flat base has both ¼-20 and ⅜-16 tripod threads.

Videosmith has also created a useful line of accessories for the rig. Included is the Roverstock, a lightweight, folding shoulder stock to give more support; the Roverpod, a monopod with swivel head that provides added stability when used with a belt pouch; Screwits, which are ⅝" microphone thread adapters to facilitate the mounting of mikes on the Rover's handgrip; and the Roverbox, an additional aluminum box which mounts beneath the one supplied, to hold another radio mike or a camera battery.

Videosmith, (215) 238-5050, fax (215) 238-5075, email: rover@beach teck.com.

Diversity TV Tuner

Clairmont Camera introduces the Diversity TV Tuner, which is designed to give uninterrupted reception for the transmission of video assist where interference may be present: this is possible via the usage of up to three additional antennae along with the unit's small built-in telescopic antenna. A normal tuner uses only one antenna, which can have problems with reflected RF signals;



when something comes between the transmitter and this normal tuner's antenna, ghosting and distortion can result.

With the Diversity TV Tuner, usually only two of the three provided Yagi antennae are needed. These antennae are mounted onto grip stands, and by situating them at the proper distance, you will be able to cover your entire scene. When used in conjunction with the tuner's telescopic antenna, the Yagi antenna are all that is needed for interference-free reception. The Diversity TV permits only the antenna with the best reception to be used. The third Yagi can

be used for special situations. When one is shooting out in the open or spanning several floors inside of a building, it will no longer be necessary to chase behind the operator to see the shot.

The Diversity TV receives all VHF and UHF channels in either color or black-and-white, and comes complete with a remote control that can be used to change channels quickly in case of multi-camera use. It is also possible to program 12 preset channels into the remote. Even without power, the remote will remember its preset channels for three weeks. The unit is equipped with two channels of stereo audio that can be used when receiving broadcast video. It is powered either by 12V DC coming out of the Clairmont monitor or by a 12V camera battery. The output is composite video. The unit mounts on top of the Clairmont monitor with special bracketry, so no extra floor space is needed. The entire tuner weighs 4.5 lbs, measures 9.5" x 10.25" x 2.375" and comes in its own case; an additional case contains the Yagi antennae and cables.

Clairmont Camera, (818) 761-4440, fax (818) 761-0861.

Standard Fluid Head

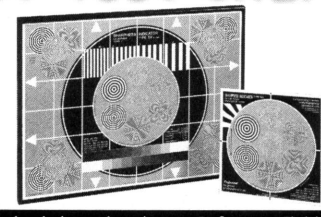
The Miller Arrow 50 Fluid Head, with rear-control illumination, now supports a wide range of ENG, EFP and film camera configurations with an extended four-position counterbalance to complement its seven-position pan/tilt drag range. Regardless of the user's choice of camera, tape or disk back, battery, lens, matte box, microphone or on-camera light configurations, the Arrow 50's selectable counterbalance, 70mm offset sliding plate and extended drag range ensures optimum support of any camera payload from 15 lbs. (7 kg) to 50 lbs. (25 kg). The unit's major controls and indicators are rear-mounted. Counterbalance pan/tilt drag and bubble levels that illuminate at the push of a button are all in constant touch with the operator. The result is control ergonomics that follow the camera pan and complement the position of camera and lens controls.

A choice of Miller and "Europlate" quick release plates allows for rapid camera attach/detach in the field, plus compatibility with existing support equipment accessories. The Arrow 50 boasts advanced die-cast

Sharpness Indicator Test Chart

The sharpness indicator is simply the most advanced and accurate test chart available.

Now you can easily and accurately evaluate the sharpness resolution of all types of video, motion picture and stills lens/camera systems.



The Sharpness Indicator is made up of test-targets with concentric circles printed on a Reference Field Level background. The background has the same reflectance as the average reflectance of the targets. This means that when a target appears to blend with the background, it indicates that the target is beyond the sharpness of the system being tested.

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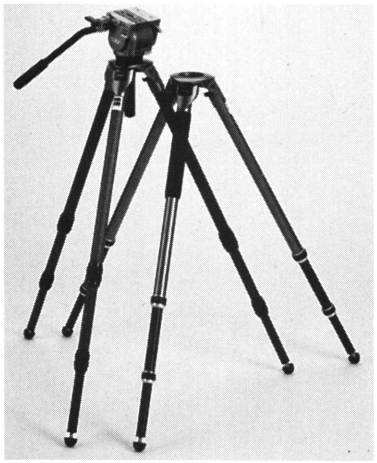


New Video Heads

Three new Gitzo Pro Video fluid heads have been announced by Bogen Photo Corp., the exclusive U.S. distributor for Gitzo products. The line consists of three models, each intended to provide optimum support for a different weight range of video cameras. All feature a separate pan and tilt, variable drag control for smooth, repeatable movements, and a separate pan and tilt lock for added security. A sliding camera platform allows quick camera balancing, and well as quick engage and disengage. The safety release incorporated into the quick release mechanism prevents the cameras from accidentally sliding off the head. Model G1380/6 has a counter-spring balance which accommodates cameras up to 13.2 lbs., the G1380/7 handles cameras up to 16.5 lbs., and the G1280/10 can take cameras up to 22 lbs. All three heads have a 75mm ball-leveling base, which fits the new Gitzo G1337 aluminum-alloy tripod, the new G1338 carbon-fiber tripod, Gitzo tripods which accept the G1422 75mm bowl adapter, and other tripods with 75mm bowls.

Bogen Photo Corp. (201) 818-9500, fax (201) 818-9177, website: www.bogenphoto.com. ■

Points East

The Apple is Ripe Once Again

by Eric Rudolph

It wasn't all that long ago that New York City was a feature film backwater.

Filmmakers who were around in the 1970s remember when the mainly fringe, documentary and art-house-oriented filmmakers working in the city had to get by with facilities mostly designed for television commercial work. Producers of the occasional mainstream New York-based feature had very few conveniently located soundstages to choose from until the 1980s. In the old days, those seeking to make non-union independent features inevitably heard a frightening urban legend: as the story goes, non-union trucks parked outside of the city's few film equipment rental houses had a mysterious habit of suddenly developing gaping holes in their tires.

That has all changed, of course. Film and television production is now a multibillion-dollar industry in the Big Town. Feature and television crews are as common as umbrella vendors on a rainy day. The unions, once notorious for onerous demands and general surliness, have become much more welcoming to all types of productions.

Confirming the area's viability as a booming center of production, the city recently announced that the film and television industry enjoyed its fourth year in a row of "record-breaking" growth. Reflecting this trend, The Shooting Gallery, best known as the company that produced Billy Bob Thornton's *Sling Blade*, plans to build a 15-studio complex 10 miles west of midtown. Plans call for this facility to include what would today be the largest soundstage in the world.

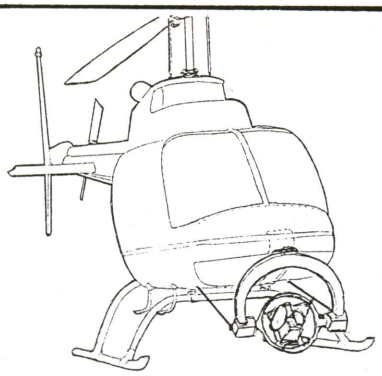
The Shooting Gallery signed a 50-year lease for a 30-acre parcel in Harrison, New Jersey (near Newark) for the studio complex, which it expects to be open for business by this summer. The second phase of the project includes a giant stage slated to be 106,000 to 110,000 square feet in size. If these plans are realized, this stage would be slightly bigger than the 105,000-square-foot stage at England's Pinewood Studios, which is generally acknowledged as the world's biggest soundstage.

To the Shooting Gallery's chief financial officer, Steve Carlis, the driving force behind this surge in filmmaking activity and facility building is clear and simple: "Filmmakers want to be here. It's a good place to live, the quality of life is up, and the city is supportive of the film community."

However, New York still cannot truly compete with Los Angeles as a film center due to the lack of a sufficient number of large soundstages. "The film-making infrastructure in New York still needs improvement," Carlis concedes. "We hope that our new stages will make it possible for very large films to be made entirely in the New York area."

Carlis gives credit to the Mayor's Office of Film, Theatre and Broadcasting for promoting the business, but also credits private industry with recognizing the viability of filmmaking. "When we decided to consolidate our Gun-for-Hire production facilities [which do not contain any soundstages] under one roof, we were able to put together a multimil-lion-dollar joint venture with the New York City Investment Fund, which is run by Henry Kravis, to build our new 85,000-square-foot facility in lower Manhattan," Carlis explains.

The Harrison, New Jersey stage facility grew out of the success of the Gun-for-Hire production service. Gun-for-Hire provides a complete package of production services which, Carlis says, can cut weeks of time from production schedules and eliminate the need for a healthy percentage of the budget necessary to bring a filmmaker's vision to reality. He explains, "We found out early on that it made more sense to have



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Of course, planning a huge soundstage facility and making it a reality in the New York metropolitan area are two different things; nevertheless, Carlis is optimistic. "Essex County and the town of Harrison are both enthusiastic, and the political process is working well. Anything could happen, but we're in very good shape." The overall cost, estimated at between $75 and $100 million, "is looking lower than we had originally projected," Carlis notes. The financing is currently being arranged by Stone Pine Capital of Morristown, New Jersey.

The Shooting Gallery is not alone in trying to meet the demand for more local shooting space. Large, high-ceilinged, column-free spaces — in many cases, abandoned steel mills — are being turned into soundstages throughout the city. The boom is so intense that other smaller East Coast cities, such as Waterford, Connecticut (where, at Sonalysts Studios, Steven Spielberg filmed many interiors for *Amistad),* Philadelphia and Washington D.C. now have stage facilities. Closer to town, New Jersey is actively encouraging such projects; the *New York Times* recently reported that another 30,000-square-foot stage is being planned in the once-booming industrial town of Paterson, a short commute from Manhattan.

The timing couldn't be better. New York's approximately 30 stages (compared with Los Angeles' 400) are normally booked solid, and 1997's film production numbers came out of the cruncher looking very healthy indeed. According to the Mayor's Office of Film, Theatre and Broadcasting, direct filmmaking expenditures grew at "record" levels for the fourth year in a row, to $2.37 billion; in 1996, the tally was $2.23 billion.

A total of 213 feature films shot 4,236 days of principal photography in the city during 1997, against 201 films and 4,147 shooting days in 1996. Direct expenditures for features in 1997 totaled $847,200,000, compared to $829,400,000 in 1996.

During a recent press conference held at Kaufman Astoria Studios, a sprawling soundstage complex just a mile or two due east of Manhattan in Astoria, Queens, New York's Mayor Rudolph Guiliani said, "The unprecedented growth of film and television production in New York City. . . improves the quality of life for all New Yorkers by creating thousands of jobs. Most of all, the thousands of stories and images of New York seen every day in every corner of the globe carry the message that New York offers endless, fascinating possibilities."

Also in attendance at the press conference were Bill Cosby, whose new CBS situation comedy is now winning its time slot, and Dan Aykroyd, whose ABC series *Soul Man* recently moved from Los Angeles to New York. Both shows are shot at Kaufman Astoria.

"New York is a great place to be a famous person," Aykroyd said. "I often take the 'N' subway train to work from my home in Manhattan, and most of the time no one recognizes me; I'm just another guy going to work on the train." Aykroyd added that people in New York are often less disruptive to films being made on the streets than in other cities. "When I shot a film in Minneapolis recently, we had a terrible problem with people who would not stop honking their horns, I guess because they were not used to seeing film crews. That sort of thing does not happen in New York."

Cosby, long a staunch advocate of higher education, extolled the city's many educational opportunities for filmmakers, explaining that those programs have made it possible to staff the booming production scene. Cosby also praised the patience of New Yorkers, who have become accustomed to seeing their streets clogged with filmmakers and production gear. "They shot a film on the street where I live recently," Cosby noted wryly, "and even though I'm in the business, I was a little annoyed at the disruption at first. But then I did what many New Yorkers do in the situation; I watched for awhile and then I went and got a free bagel [from the craft service table]." ■

Books in Review

by George Turner

Daredevil Cameraman
by Russell and Beverly Fernstrom
Pentland Press, 192 pps., hardback, $22.95

All cinematographers have had exciting and often dangerous experiences while practicing their craft, but Ray "Swede" Fernstrom, ASC (1900-1978) had more than most. His son and daughter-in-law utilized his piecemeal memoirs and the reminiscences of family and friends to assemble this lively biography of a tough, adventurous and creative man. They have stripped away Fernstrom's rugged exterior to reveal his rugged interior. As it should, his story casts some light upon the history of motion pictures; it also includes a few scandalous bits.

The tale begins with Fernstrom's early childhood in Sweden and follows him to Massachusetts where, after finishing high school, he set out on a job as a salesman, hawking samples paid for by his parents. He later sold all of the samples for cash and bought a Wilart 35mm movie camera. Self-taught, he became a newsreel correspondent cameraman in Stockholm for Kinograms, the parent of the Universal Newsreel. In 1925, he and Bernt Balchen flew to the rescue of Polar explorers Amundson and Ellsworth, and survived the crash of Balchen's plane. A year later he was in Hollywood working at Paramount as an Akeley camera assistant to John W. Boyle, ASC. At MGM he made glass shots under the tutelage of Ray Binger, ASC.

Later, while working for Paramount News, Fernstrom shot some 2,000 feet of film every week for several years. His description of how the newsreel business operated is punctuated with vivid descriptions of dangerous adventures aboard balloons, airplanes, autogyros, dirigibles, ships and submarines. He made travelogues in Multicolor, took the first three-strip Technicolor camera abroad for Fitzpatrick Traveltalks, worked in three-strip Dunning Color, traveled widely with a Mitchell bi-pack color rig making Paramount's *Popular Science* and *Unusual Occupations* shorts, and received a Purple Heart as an aerial combat cameraman in North Africa. After returning home, the intrepid cinematographer shot the first Circarama film for Disney and carved a new career in television and theatrical films.

Along with the danger and sometime glamour of Fernstrom's life, there was an abundance of booze and women (he was married three times). *Daredevil Cameraman* is good reading and provides a good education about some of the lesser-known aspects of the movie business.

BFI Film Classics:
Bride of Frankenstein
by Alberto Manguel
The Big Sleep
by David Thompson
British Film Institute/ Indiana University Press
72 pps., paper, $9.95 each

A series of monographs on classic movies is currently being issued by the British Film Institute in uniform format. At least 34 titles are announced, covering a wide range that includes *Double Indemnity, Went the Day Well?, The Wizard of Oz, Odd Man Out,* and *Annie Hall. Bride of Frankenstein* and *The Big Sleep* are the first two we have received; they are small (digest size, 70+ pages) but elegant (classy printing and paper, excellent reproduction of stills and frame enlargements). ➢

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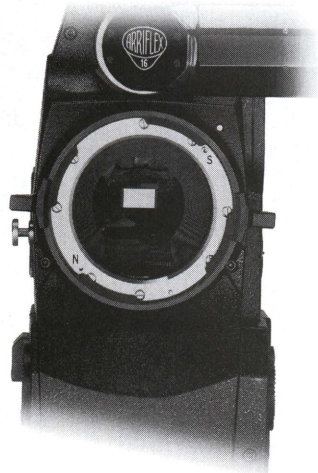
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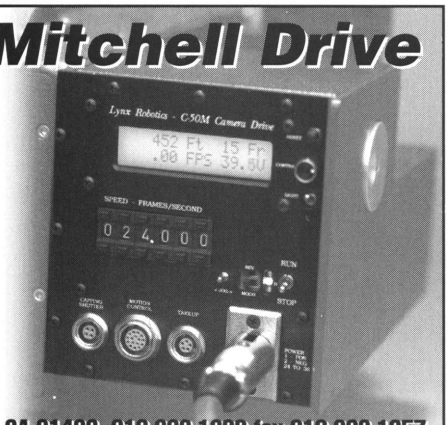

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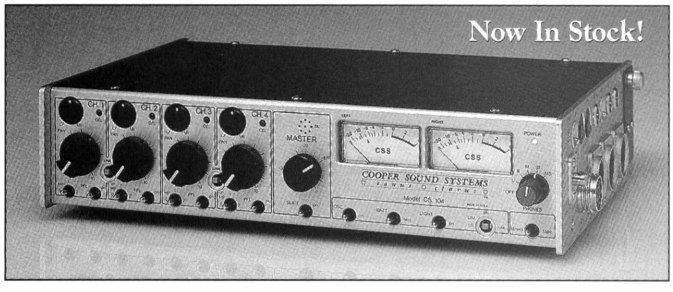

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Manguel gets a pretty good handle on *Bride,* which he obviously likes, telling the story of the film and analyzing it as he goes along. It's a good approach, although he is wrong on a few story points: the Monster doesn't beat the Burgomeister to death in the deleted footage, but only slaps him twice; he doesn't really drag Elizabeth to her bed, but out the window; in the vault, the Monster doesn't say "Friend?" to a sarcophagus carving of a woman, but to a woman's veiled corpse in a casket he's accidentally smashed. A lot of complimentary things are said about *Bride,* but just to show the other side of the coin, the author includes a review by Graham Greene who calls the picture "a pompous, badly-acted film, full of absurd anachronisms and inconsistencies." The Frankenstein myth is traced to its origins, earlier film influences are given a once-over, and parallels are found in classical and modern art.

Thompson's views on *The Big Sleep* bring out some interesting aspects of a show that has been an audience-pleaser for more than half a century. Thompson is surprisingly (but not endearingly) earthy at times, referring to actress Lauren Bacall in *To Have or Have Not* as "an insolent, 19-year-old sexpot with blowjobs lurking behind her sultry gaze," and observing that in *The Big Sleep,* when Bogart says he's beginning to like her, she "admits she likes that, like someone who has just had a remarkable foot massage, or was it cunnilingus?" Really, now — we're talking about a picture that would get a "G" rating today.

One fresh note is an interview with the late "Slim" Keith, widow of director Howard Hawks, who tells how Hawks used her as the basis for Bacall's smoldering screen personality. Also discussed in the book are the facts about the extensive reshooting of the picture before general release, the differences between the Raymond Chandler novel and the movie adaptation, and the personalities and personal problems of the director and stars.

This series is a dandy idea and we look forward to future installments. ■

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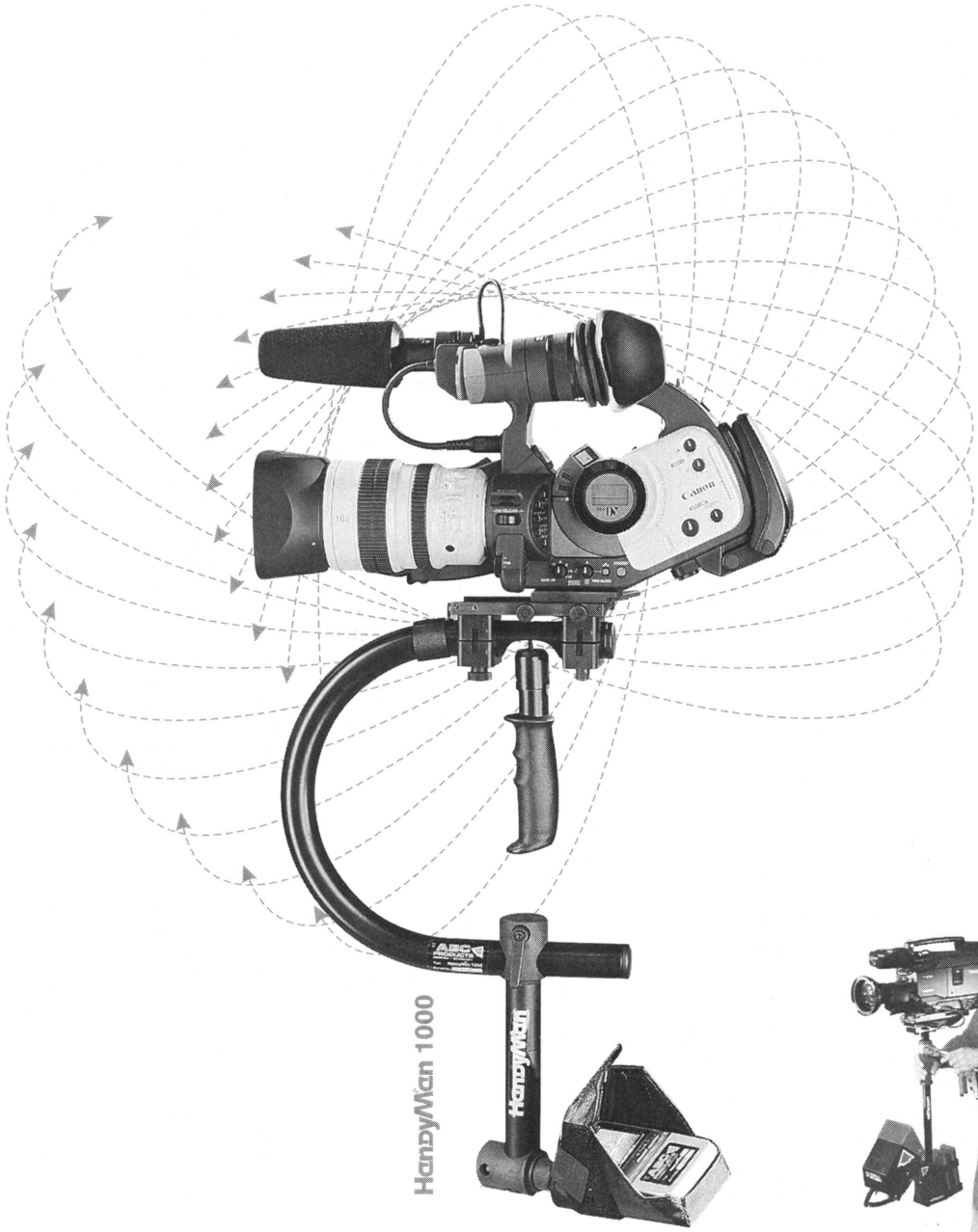

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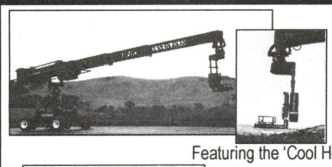

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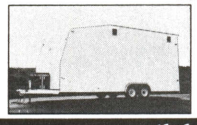

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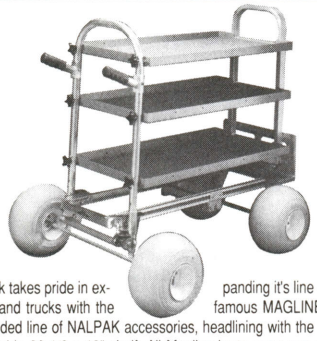

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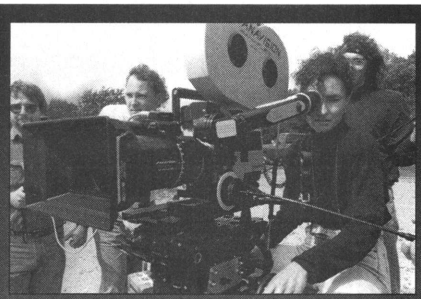
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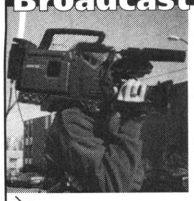

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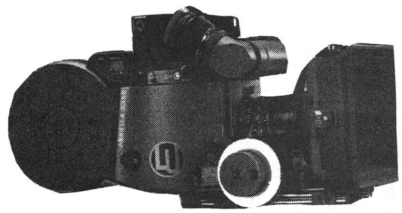

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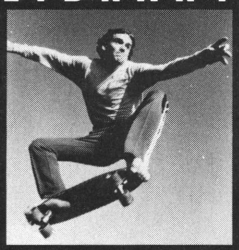

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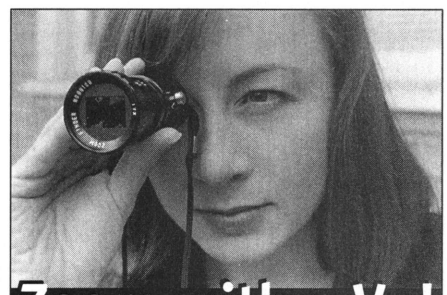

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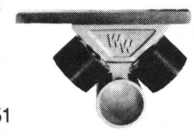

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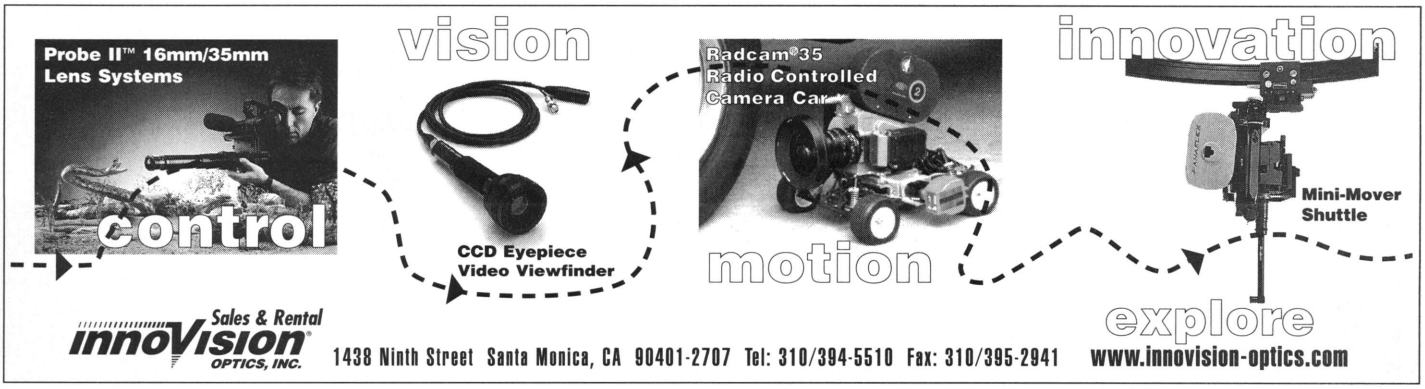

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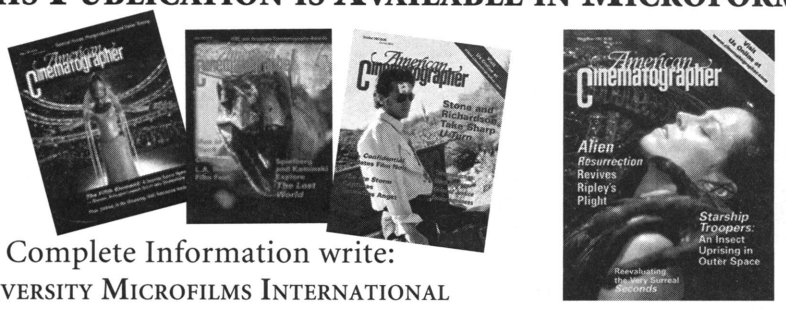

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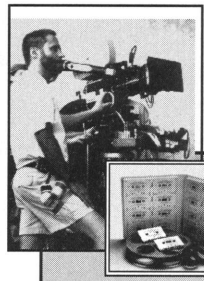

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In Memoriam

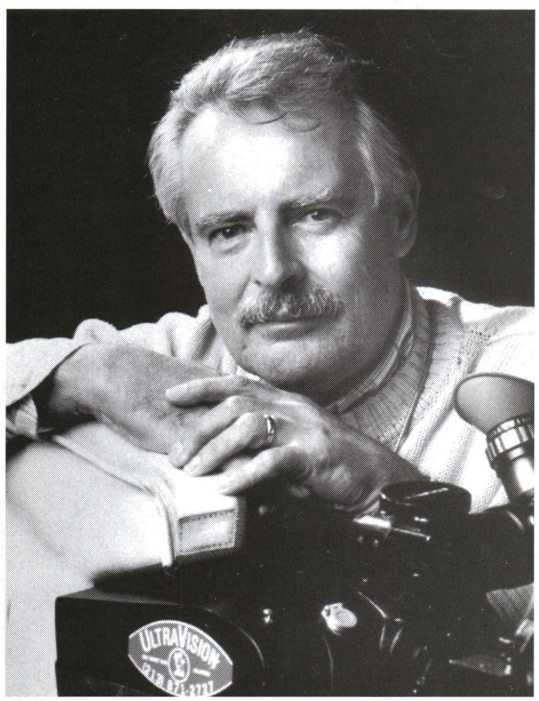
Richard C. Glouner, ASC, a distinguished cinematographer and a longtime member of the ASC Board of Governors, died of ALS (Lou Gehrig's disease) on February 9 in Newport Beach, California. He was 66 years old and had worked in motion pictures for 43 years.

He was born August 12, 1931 as the son of Martin Glouner, a director of photography at Universal whose career was cut short by blindness in 1933. Richard's uncle, Don Glouner, ASC, a veteran visual effects cinematographer at Columbia and later co-founder of the Butler-Glouner Company, became his mentor. Richard began his movie career in 1955 as an animation cameraman on Walt Disney's cartoon feature *The Lady and the Tramp.* After a stint at Disney be left to become a film loader at Columbia. An opportunity to work in visual effects brought him to Twentieth Century Fox, where he assisted James Gordon, ASC, head of the optical effects department. Later he worked for John Gustafson.

"After an apprenticeship in optical and lab work, I was ready to move on, choosing production," Glouner recalled in 1974. "Over a period of 15 years in this field, I moved from second assistant to first assistant, progressing to second cameraman on three TV series as well as several features. In 1968 I was promoted to first cameraman by a commercial company under a one-year contract. From that time to the present I've been a director of photography on several features and many movies of the week in a free-lance capacity."

Specializing in movies of the week, pilots and specials, Glouner did some of his finest work in TV, which he loved in spite of the often grueling hours. When asked why he always brought an extra pair of shoes to the set, Glouner replied, "It's to fool my feet when I have to stay on them for 18 hours."

Glouner worked on a number of high profile series, such as *The Bold Ones, The Name of the Game, Night Gallery, Petrocelli, It Takes a Thief, Logan's Run, Champion, Beantown, Wizards and Warriors,* and *Vegas.*



TV movies of the week, which became a Glouner specialty, include a *Columbo* special which earned him an Emmy. He also received an Emmy nomination for *Griffin and Phoenix.* Other MOWs include *Bud and Lou, The Gun and the Pulpit, Louis Armstrong, Message to My Daughter, Walking Through the Fire, Beekman's Place, The Girl Most Likely, Liza Bright and Dark, Secrets, Cocaine and Blue Eyes, Scruples, The Brainwashing of Candra Torres, Marion Rose White, The Savage Bees,* and *The President's Plane is Missing.* He also filmed *V,* an acclaimed series of sci-fi films for television.

Among Glouner's theatrical features are *The Man With Bogart's Face, The Gong Show Movie, Buckeye, Another Chance, The Gumball Rally, Christina, The Devil's Eight, Pay Day, A Cry for Help, The Dunwich Horror, Making It, Summertree, What's a Nice Girl Like You Doing?, Mother, Jugs and Speed; Bloodsport, The Acts of Peter and Paul,* and others.

He was elected to ASC active membership in 1974, and soon became a member of the Board of Governors. He served on numerous committees, including those for the annual ASC Awards and Golf Tournament. Glouner himself was a champion golfer who won the tournament a number of times.

Glouner taught cinematography at the American Film Institute and at the University of Southern California. (Even while teaching at USC, he remained an avid fan of the UCLA Bruins football team). He served two terms on the Board of Governors of the Academy of Television Arts and Sciences. He also worked on various ATAS committees.

His friends and colleagues remember him as a handsome, outgoing and perennially young man with a wonderful family and an endless variety of amusing yarns to spin. His home, close to the beach, was often the scene of parties and cookouts. Director Andrew Fenady, for whom Glouner photographed *The Man With Bogart's Face,* said that "Dick loved Hollywood and its history more than anyone I know."

He is survived by his wife of 43 years, Margot; his daughters, Robin Eccles and Heidi Embleton; and grandchildren Ashley, Ryan Austin and Madison. Memorial services were held at the Church of the Hills at Forest Lawn, Hollywood Hills. ■

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In Memoriam

Jack Woolf, ASC, an Emmy Award-winning cinematographer, died in Woodland Hills on January 15 at the age of 80. Although he is best remembered for his television work, Woolf was also noted for the spectacular aerial photography he contributed to major theatrical productions.

Born in Hartford, Connecticut, on February 25, 1917, he resided in Southern California from the age of three onwards. While working in his father's grocery store in Culver City, he met John Mescall, ASC, who was then under contract at Metro-Goldwyn-Mayer. After a long friendship with Mescall he was — in his words — "hooked on my chosen field of cinematography." In 1942, Woolf began working as an assistant cameraman at various studios. He also served in the U.S. Navy during World War II. During the Fifties he functioned as an assistant/operator on many Warner Bros. TV productions.

Woolf was working as an operator in 1962 when he shot aerial photography in CinemaScope for Twentieth Century Fox's *Air Patrol.* In 1969 he became a director of photography, and that same year he captured all of the acclaimed aerial sequences for Stanley Kramer's epic Todd-AO 70mm comedy, *It's a Mad, Mad, Mad, Mad World.* He served as director of photography on several features, including *Virginia Hill* in 1975, *Matilda* in 1977 and *Billion Dollar Threat* in 1978. Woolf became a member of the ASC in 1979.

Most of his later career was devoted to television, interspersed with theatrical features. He photographed the popular Seventies series *The Six Million Dollar Man.* In 1973, he received an Emmy Award for "An Eye For an Eye," an episode of Warner Bros.' *Kung Fu* series, and also shot episodes of *Harry-O.* His TV features include *Dead Men Tell No Tales* (1971), *The Healers* and *The Mark of Zorro* (1974), and *The Five of Me* (1981).

Services were held on Tuesday, January 20, 1998 at Mount Sinai Memorial Park, Los Angeles. He is survived by his wife, Lee; a son, Ryan; a daughter, Lynda; five grandchildren and one great-granddaughter. ■

Wrap Shot — *continued from page 144*

camera were equipped with a red gel on one and a green gel, respectively. We were all shooting black-and-white film in those days and I couldn't see or understand what the colored lights were supposed to be doing. I went up to Stanley and asked, "Stan, I don't understand what the colored fill lights are doing." To which he replied, "Jerry, they're not doing a damn thing to the picture." Gesturing to the two officers standing in the background, he added, "But those nosy bastards over there can't figure it out either and they're too stupid to ask!"

That was Stanley playing tricks again.

After being discharged, I didn't see Stanley again until about 28 years later, in 1972 or '73. I'd made a career move from New York City to Los Angeles, and was attending my very first ASC dinner meeting — long after having joined the organization. Stanley was the ASC's president at the time, and following some opening statements, he said, "It's my privilege and it gives me great pleasure to hand a gold 25-year membership card to Gerald Hirschfeld." With a big smile, Stanley shook my hand and said, "Congratulations, Jerry."

These stories are fond remembrances of my friend Stanley Cortez, may he rest in peace. I'll never forget him as a friend, and I'll always admire his work.

— Gerald Hirschfeld, ASC

Mr. Hirschfeld is an outstanding cinematographer in his own right, whose credits include Fail Safe, Diary of a Mad Housewife, Young Frankenstein *and* My Favorite Year.

From the Clubhouse

ASC Inducts Spinotti

New to the ranks of the American Society of Cinematographers is Italian-born director of photography Dante Spinotti, AIC. The cameraman's zest for still photography, which began at the age of 10, was fostered by his father, who encouraged young Dante to use his Zeiss Ikonata 6 x 6 and build his own darkroom.

In 1961, Spinotti's parents relieved him from Greek and Latin studies at Milan's Classic Lyceum so that he could apprentice with his uncle, Renato Spinotti — a cameraman in his own right and director for East African Film Services in Nairobi, Kenya. A year later, the young Spinotti returned to Milan, where he worked as a freelance assistant cameraman on commercials and as an assistant and later full-fledged cinematographer on TV documentaries in both Italy and the world over. In 1970, he became a staff cinematographer for RAI, the Milan Branch of the Italian State Television, alternating between documentary work and televisual films.

A decade later, Spinotti relocated to Rome to pursue a freelance career as a director of photography in the indigenous motion picture industry; he wound up collaborating with such accomplished directors as Giacomo Battiato, Lina Wertmuller, Liliana Cavani, Ermanno Olmi and Giuseppe Tornatore. In 1985, producer Dino De Laurentiis introduced Spinotti to Michael Mann, for whom he shot the U.S. feature *Manhunter*. The cinematographer's subsequent credits include *The Last of the Mohicans* (for which he earned a 1992 ASC nomination), *Beaches, Crimes of the Heart, Frankie and Johnny, True Colors, The Comfort of Strangers, The Quick and the Dead, Nell, Heat* (see *AC* Jan '96), *The Mirror Has Two Faces* and *L.A. Confidential* (*AC* Oct. '97), which earned the cinematographer both an ASC and Academy Award nomination.

Carpenter Feted in Chicago

On March 1, Russell Carpenter, ASC won the Best Cinematography Award from the Chicago Film Critics for his work on the record-breaking film *Titanic*. Other nominees for this prize included fellow ASC members Roger Deakins *(Kundun),* Frederick Elmes *(The Ice Storm)* and Dante Spinotti *(L.A.Confidential),* as well as French cameraman Sacha Vierney (for Peter Greenaway's *The Pillow Book*). These awards are now in their tenth year; Kodak launched the cinematography award and has sponsored its presentation for the past eight years. ■

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WRAP SHOT

Standing next to the camera, with one hand on the seat and a foot on the dolly, Stanley Cortez, ASC works at the Army Signal Corps Photographic Center in Astoria, New York circa 1942-45. The production was a Christmas film, featuring singer Marian Anderson and music conducted by Leopold Stokowsky (both at center of picture).

It was 1943. I'd been in the Army for about a year and couldn't believe that I was stationed at the Signal Corps Photographic Center at Long Island City in New York. As a civilian, I lived in New York City, where I had worked as a still photographer, and was fortunate in being transferred to the training film division of the Army. Our base was the old Paramount Studios in the 1920s and '30s, and is now the Kaufman Astoria Studios.

At this time, there was a new arrival in the camera department, Stanley Cortez, ASC. We also had some other notable directors of photography, including ASC members Leo Tover, Joseph Biroc and William C. Mellor. These men came in as lieutenants, but by the time Stanley arrived there were no more commissions to be had, so he was a private, like me.

Although I had never done any professional motion picture photography, Stanley was open and friendly with me. I was in awe of his work, as well as his 1942 Academy Award nomination for *The Magnificent Ambersons* — some of the finest black-and-white filming ever done. He was a master of lighting and made great images.

Interestingly, the head of our department was a captain, but not a cinematographer — he had worked at 20th Century Fox, which impressed the Army. The second in command, a lieutenant, was a former Hollywood camera operator. Stanley wasn't too happy to have these men as his superiors, particularly as he was a mere private.

Not only did we make training films, but the Army also made entertainment shorts to be seen by the troops overseas. Rank notwithstanding, Stanley was given most of the prestigious assignments. Here's where my story becomes fun, and a tribute to Stanley's talent. Just remember, he had no love for the men heading the camera department.

One day, Stanley was called into our captain's office, and the conversation when something like this:

"Stanley, we'd like you to teach a lighting class for the new recruits."

"Sir, I don't think I can do that."

"Come on now, Stanley, you'd be doing a great service for the Army. Your reputation will impress these men."

"I'm sorry, but I must refuse."

"Private Cortez, this is an order. You will teach a lighting class, starting tomorrow."

What was Pvt. Cortez to do? If he didn't obey an officer's order he could be court-marshaled.

The next morning, Stanley appeared at a lower-level stage and saw about 50 young recruits seated and waiting for his class. Standing in the rear were the captain and the lieutenant. Stanley instantly knew that they were there only so they themselves could learn something about lighting from an expert. They didn't really care about the recruits who were going overseas to shoot news footage.

Smiling broadly and walking tall, Stanley took center stage. Here's his dialogue as best as I can recall: "Good morning, gentlemen. I'm here to give you pointers on how to light for motion pictures. Now, this is a very broad and complex subject, so it might be best to get right to the heart of the subject by answering your direct questions."

A hand went up and Stanley nodded to a recruit, who asked, "Will you tell us the main difference between high-key and low-key lighting?"

"Ah, a good question," Stanley said. "Well, in high-key lighting you raise the main, or key, light as high as you can, and in low-key lighting you keep it low, near the floor sometimes."

This explanation was factually accurate, but not what the camera department guys wanted to hear. The teaching session was immediately canceled, but the officers didn't give up easily.

Pvt. Cortez usually had the sets he worked on walled in by flats, for privacy. He didn't mind any of his fellow workers stopping by to see how he was lighting, but he wanted to make it a conspicuous effort for the officers to watch. I walked onto his set one day, watched for a few minutes, and noticed something very peculiar. The fill lights (1,000-watt broads) on the left and right sides of the

continued on page 142

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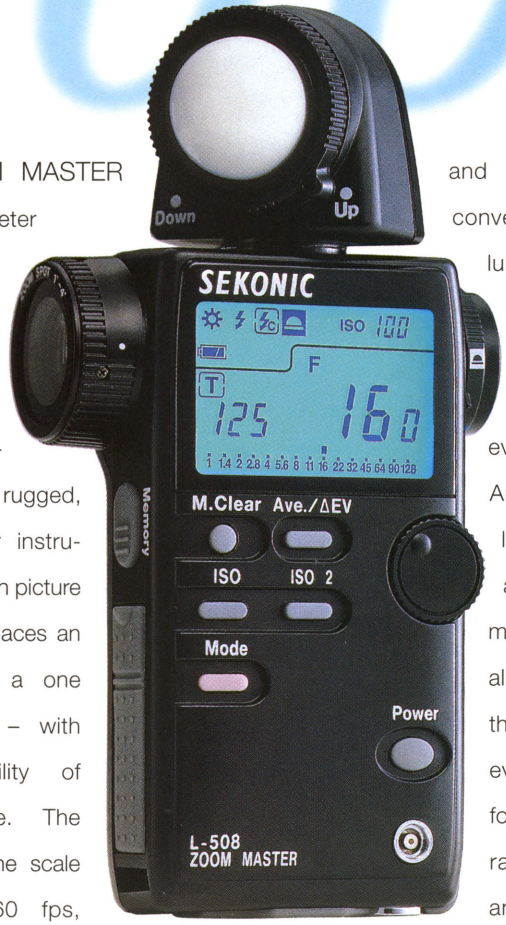

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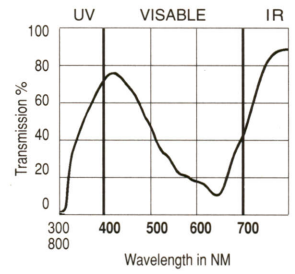
- **Inside Front Cover is a White Reference Card**
- **Inside Back Cover is 18% Grey Reference Card**



GamColor ©

1523

FULL CTB

Light loss = 1.7 Stops
24% Transmission
Mired Shift = –141

Convert 3200°K to 5500°K . Will convert 3200°K to photographic daylight. Can be used with other correction to achieve a specific color temperature. Use on lights and windows. If used with + or – green will help correct some fluorescent or discharge sources.

Converts ⟶	To
3200°K	5500°K
5600°K	34,480°K
2210°K	**3200°K**
3130°K	**5600°K**

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GamColor available / sheets: 20"x 24" / 3 roll sizes: 48"x 25', 24"x 50', (Junior) 24"x 198"

for more information and where to buy, call 888-GAM COLOR (US and Canada)

The Great American Market

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